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The ILLINOIS Medical Journal

VOL. 87 NO. 3

March, 1945

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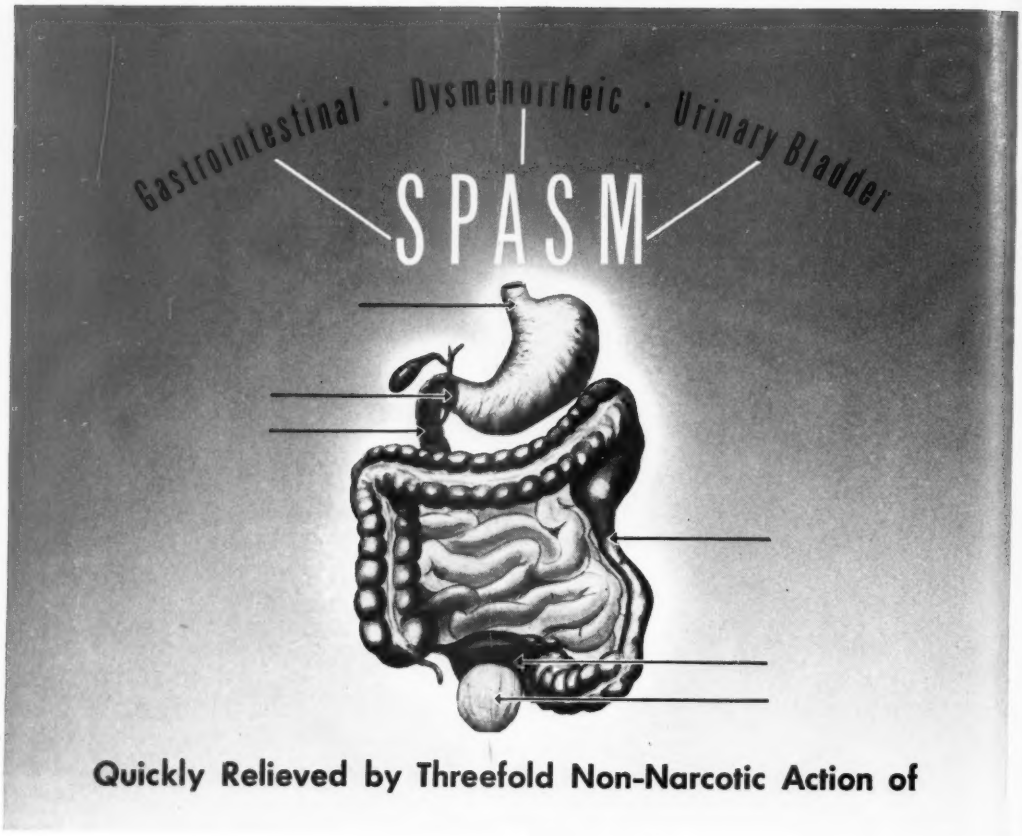
OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY



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The Illinois Medical Journal

March, 1945

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Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Harry Culver, Walter Stevenson, Raymond W. McNealy.

Editorials

CANCER CONTROL IN ILLINOIS

Broadly speaking, cancer in Illinois follows the same pattern as elsewhere in the country and presents no important differences in behavior.

Contributing more than 12,000 deaths annually in the State, exceeded only by heart disease, cancer ranks high in the general mortality.

In the practice of medicine, cancer control is largely a matter of early diagnosis and correct treatment promptly applied. The diverse clinical manifestations of this disease create a demand for modern methods in pathology, diagnosis, treatment and follow-up which is hardly equaled in any other medical field.

With the extensive improvement of diagnostic and therapeutic techniques the care of the cancer case can no longer be considered a "one man job." To give the cancer patient the best service today, the general practitioner must refer him to more experienced hands; the cancer surgeon must appreciate the value of radiation therapy; the radiologist must be familiar with the possibilities of cancer surgery; and both must be acquainted with the science of the pathologist. Consultation and team work are necessary for best results in every phase of management of the cancer case.

Modern methods of cancer therapy are best provided in cancer institutes, cancer hospitals, and special cancer services in general hospitals. A cancer institute is a large organization, preferably affiliated with a university, which is amply equipped to provide the most advanced treatment for every form of the disease and complete facilities for research and education in the cancer field. With special equipment and a specially trained staff the cancer hospital also renders a superior type of service to the cancer patient, without the more extensive provisions for research and education. When the facilities of a cancer institute or cancer hospital are not available, the more pressing needs of the situation can be satisfactorily met by special cancer services in general hospitals.

In this latter field, Illinois took a place among the leading States of the country in 1941 by the initiation of a program of promotion and maintenance of tumor diagnostic services in general hospitals under the auspices of the Division of Cancer Control of the State Department of Public Health. The policies of this program have been developed in close cooperation with the Cancer Committee of the State Medical Society; and supervision by the Advisory Board to the Division, consisting of physicians eminent in the cancer field, has insured the conservation of the interests of the practicing physician in every respect. Several hospitals in the Chicago area have conducted important special cancer services under private auspices for many years.

With the increasing cancer load resulting from improved diagnosis and an aging popula-

tion there has been a corresponding increase in the need for more extensive diagnostic and therapeutic facilities in general hospitals, where the vast majority of cancer patients are now treated. In the downstate areas particularly this need is immediate and urgent.

The most distressing problem of cancer control is the care of the indigent terminal cancer case; and no satisfactory program for such care has yet been devised anywhere. A separate institution for such terminal care is considered by cancer authorities to be undesirable. In this State the problem may be largely met by the provision of home-nursing care for the majority of these cases; and active consideration should be given to such a program.

Furthermore, the time is rapidly approaching when Illinois must plan for the establishment of a cancer institute which will rank with the existing organizations of national influence that are making important contributions to the advancement of knowledge and practice in cancer control.

As in every other field of medical effort, adequate instruction of the undergraduate and postgraduate physician in the newer knowledge of diagnostic and therapeutic procedure is an essential requirement for the most effective results in the care of the cancer patient. The present activities of the Scientific Service Committee and the Postgraduate Committee of the State Medical Society are important efforts in this direction. The augmentation of cancer courses in medical schools, the conduct of cancer seminars for the surgeon, radiologist and pathologist, the inclusion of cancer symposia in county medical society programs, and the production of scientific cancer literature are desirable features of professional education in the cancer field.

The dissemination of correct information about cancer among the laity is an important phase of cancer control. This is best accomplished through lectures by qualified physicians, such as those provided by the Educational Committee of the State Medical Society, and the distribution of authoritative literature for the general reader. The Illinois Field Army of the American Cancer Society and the Division of Public Health Instruction of the State Depart-

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ment of Public Health are doing important work in this field.

PREPAYMENT MEDICAL CARE PLANS

For a number of months the Illinois State Medical Society has had a Committee on Prepayment Plans for Medical and Surgical Care making an intensive study of all types of plans now operating in all parts of the country, and also of any other possibilities which have been brought to the attention of the committee.

A resolution was approved by our House of Delegates at the 1944 annual meeting requesting the Council to appoint such a committee to make a careful study of all phases of this important problem, then to present a report at the next annual meeting. The resolution when presented before the Council with the recommendations of the House, resulted in the appointment of this Committee with Dr. Charles H. Phifer, Chicago, as the Chairman.

Information has been collected from all parts of the country where any type of plan has been operating. Comments and suggestions from those operating the several types of plans were likewise solicited. Much information was accumulated as a result of these inquiries, as well as from many other sources. The Committee has held a number of meetings which will continue to be held until all available information has been procured. Then the Committee will go over this data carefully and prepare a report to the House of Delegates for whatever action may be deemed advisable.

It was the desire of the Committee to procure information concerning both indemnity and service plans. Conferences have been held with representatives of a number of different types of organizations including insurance companies, many of which have been issuing policies against the hazards of illness and other forms of disability for many years. Groups from industry, business, labor and agriculture have already met with the Committee to give their views on the subject of prepayment medical care. Other groups are scheduled to appear before the committee in the near future.

Probably the majority of state medical societies in this country have developed some plan for prepayment medical care for people in relatively low income groups. If they have not, they are probably making an intensive study at this time with the idea in view of procuring all available information on the subject to be presented before the various societies for whatever action seems advisable. Whether or not a single plan can be developed if desired by the House of Delegates, which would be appropriate for all sections of Illinois, seems rather questionable at this time. The Committee now, is merely a fact finding committee, and may have more to say on this subject later on.

Some plans now in operation give both medical and surgical care as well as obstetrical care; others give surgical and obstetrical care only in hospitals. Physicians in Illinois as well as elsewhere, should give this subject the most careful consideration and be thoroughly informed in every way possible so as to come to the proper conclusions before endeavoring to experiment in a field which has so many ramifications. It is quite obvious that our own Committee will have a most interesting report to present to the House of Delegates at its next session.

PENICILLIN FOR PNEUMOCOCCIC MENINGITIS

Sixteen patients with pneumococcic meningitis were treated with penicillin with nine deaths whereas among 40 patients treated with sulfonamides but not with penicillin there were thirty-seven deaths, four physicians report in *The Journal of the American Medical Association* for February 3. Some of those receiving penicillin also were given either sulfadiazine or sulfamerazine. Twenty-one of the 40 patients given either sulfadiazine or sulfamerazine also were given antipneumococcic serum.

"The two groups," Lewis K. Sweet, M.D., Washington, D. C.; Edith Dumoff-Stanley, M.D., Boston; Harry F. Dowling, M.D., Washington, D. C., and Lieutenant Mark H. Lepper, M.C., A. U. S., say in their report, "were shown to be very similar as regards the factors which are important in evaluating the prognosis. . . . It is concluded that the optimal treatment of pneumococcic meningitis should include the use of penicillin and sulfadiazine or sulfamerazine. . . ."

★ BUY AN EXTRA BOND ★

Medicine's Role in the War Effort

SELECTIVE SERVICE SYSTEM
Illinois State Headquarters
SELECTIVE SERVICE REGULATIONS FOR DEFERRED CLASSIFICATION
March 8, 1945

Selective Service now requires every male physician, between the ages of 18 and 37 inclusive, to personally complete and submit, or have submitted for him by his employer, an "Affidavit for Occupational Classification" *to the Procurement and Assignment Service Committee for Physicians* for certification by that committee and transmittal to the Local Board having jurisdiction over the registrant.

The forms to be used by various age groups, the number of forms to be submitted, and where these forms may be obtained are listed below:

1. DSS Form 42-A (Special-Revised) for male physicians (including male internes) NOT DISQUALIFIED FOR SERVICE; 18 to 29 years of age inclusive: two (2) *triplicate copies* of this form, obtainable from the Procurement and Assignment Service Committee for Physicians, Dr. Harold M. Camp, Monmouth, Ill., or Dr. Harry M. Hedge, 30 No. Michigan Avenue, Chicago, Ill.

2. DSS Form 42-A, *one* original and *one* copy, for male physicians (including internes), 30 to 33 years of age inclusive. This form is obtainable at your Local Board.

3. DSS Form 42: For all male physicians and male internes, 34 to 37 years of age inclusive, *one* original and *one* copy. This form is obtainable at your Local Board.

(a) DSS Form 42 will also be used by all physicians between the ages of 18 and 37 years of age inclusive, who have been DISQUALIFIED FOR SERVICE either on application for commission or at the Armed Forces Induction Station. A physician in this category must indicate on this form, and support with evidence, the fact that he has been disqualified, and by what agency. This form is obtainable at your Local Board.

Deferred classifications are established for a period not to exceed six months. It is the personal responsibility of each physician to submit affidavits shortly before the expiration of each current deferred classification.

All II-A or II-B classifications will be reopened by Local Boards not later than 1 April 1945. No deferred classification will be continued, or established, without an affidavit, certified by Procurement and Assignment Service, being in the hands of the Local Board at the time of consideration for deferred classification.

If the Procurement and Assignment Service Committee *certifies* an affidavit, the affidavit will be forwarded to the Local Board and the copy to State Headquarters.

If the Procurement and Assigment Service Committee does *NOT* certify to the essentiality of the physician, these forms will be returned to the doctor who submits them. The doctor may then submit the forms returned, to the Local Board. No doctor 18 to 37 years of age inclusive will be considered essential and eligible for deferred classification unless his forms are certified by the Procurement and Assignment Service Committee and submitted by the committee to the Local Board.

ARMY RECONDITIONING BASED ON INDIVIDUAL NEEDS

More than 100,000 sick and wounded are now participating in the Army's reconditioning program, in which emphasis is focused on the individual soldier's own interests, his likes or dislikes, talents and background. Mass regimentation is out. Col. Augustus Thorndike is in charge of the reconditioning Division of the Office of the Surgeon General, which was created in July 1943. It is his belief that reconditioning is a new technic in modern military medicine.

The reconditioning program is divided into three broad general phases: physical reconditioning, education reconditioning and occupational therapy. The physical reconditioning phase embraces a scientifically planned schedule of activities, including remedial exercises, bed calisthenics, sports and games, gymnastics, combatives, guerilla exercises, marching and running. All are designed to retard bodily deterioration during

the early stages of convalescence and later to restore the strength, endurance and coordination which go into the makeup of an efficiently performing soldier. Educational reconditioning is intended to augment the medical and surgical cures or repairs with a varied list of subjects which will stimulate the minds of men compelled to lie for weeks or months in a hospital bed, to forestall the mental depression setting in with idleness. Occupational therapy, like the bed exercise and educational activities, starts as soon as the patient is physically able. The mild exercise and mental relaxation of constructive work by bedridden patients has been found to speed up their recovery beyond the rate accomplished by medical care.

Through the efficient functioning of the Medical Division, the Preventive Medical Service and other branches of the Army Medical Department, the Army has reduced the death rate from disease to a figure that is lower than that for any of the ten peacetime years preceding our entrance into the war. The Surgical Service has established a new record in military history by saving the lives of 97 per cent out of every hundred wounded men who reach a hospital alive.

In the same way this latest undertaking of the Medical Department, the Reconditioning Division, has reached the point where 12,000 officers and enlisted patients are returned to active duty every week.

★ ★

PLAN TO INCREASE BED CAPACITY OF ARMY HOSPITALS

Major Gen. George F. Lull, deputy surgeon general, recently announced that plans are nearing completion to increase the bed capacity of the Army's general and convalescent hospital system by 70,000 to care for the additional sick and wounded soldiers returned from overseas. At present the rate of evacuation of casualties to this country is more than 30,000 each month, as compared with the first six months of 1944, when the total was approximately 9,000 a month. One means of providing the additional facilities has been the temporary conversion of four station hospitals to the general and convalescent type. They will be known as U. S. Army general hospitals but not as name general hospitals. These are located at Camp Edwards, Falmouth, Mass.; Camp Pickett, Blackstone, Va.; Camp Butner, Durham, N. C., and Camp Carson, Colorado Springs, Colo.

Another feature of the program will be the expansion of some convalescent hospitals in several of the service commands. After a soldier has been treated at the general hospital which specializes in his particular type of injury, the Army will transfer him to a convalescent hospital. There reconditioning treatment speeds his recovery. This procedure also makes available more general hospital beds for the more serious cases. In addition to the four named, the list of expanded installations includes Camp Upton Convalescent Hospital, Yaphank, L. I., N. Y.; Fort Story Convalescent Hospital, Virginia Beach, Va.; Welch Convalescent Hospital, Daytona Beach, Fla.; Wakeman General and Convalescent Hospital, Camp Atterbury, Ind.; Percy Jones General and Convalescent Hospital, Battle Creek, Mich.; Mitchell Convalescent Hospital, Campo, Calif., and Old Farms Convalescent Hospital, Avon, Conn.

★ ★

MAJOR GENERAL HAWLEY PAYS TRIBUTE TO ARMY NURSE CORPS

Major Gen. Paul Hawley, chief surgeon of the European theater of operations, recently paid high tribute to the Army Nurse Corps on its forty-fourth anniversary, stating that "one of the most glorious pages in the history of the Army Nurse Corps is being written today. . . . Magnificent is the one word that describes the job they are doing."

In commenting on the serious shortage of nurses which exists not only in hospitals overseas but at installations within the United States as well, General Hawley pointed out that the critical lack of nurse reinforcements has forced the Medical Department three times to reduce the number of nurses stationed with each hospital. In 1940 there were 120 nurses to a 1,000 bed army general hospital; in 1943 the number was cut to 105 and in 1944 to 83. At the same time the bed capacity of many hospitals has been increased, with 1,000 bed hospitals carrying an average load of 1,300 patients each. Nurses who have been overseas for more than two years are working twelve, often as long as sixteen, hours a day. "The army nurse is a good soldier; she asks no favors. But she is becoming tired. There is only one solution: we must have more nurses," General Hawley stated.

★ ★

ARMY AWARDS AND COMMENDATIONS

Colonel Marion H. Barker

Col. Marion H. Barker, formerly of Chicago, was recently awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding services in the North African Theater of Operations from Jan. 21, 1944 until July 8, 1944. Assigned to the study of infectious hepatitis, Colonel Barker devised a comprehensive and effective plan of investigation and discovered valuable new data concerning its diagnosis, progress, treatment and after-effects. By his keen scientific insight and coordinated labors he developed methods of treatment and criteria for the disposition of patients suffering from this disease which prevent undue damage and restore most of those afflicted to their normal activities as healthy individuals rather than as chronic sufferers. The fighting strength of the Army has been measurably increased by this work. The investigations conducted by Colonel Barker are among the outstanding contributions to medical science during this war and are consistent with the highest traditions of research in the Medical Corps of the Army." Dr. Barker graduated from Rush Medical College, Chicago, in 1926 and entered the service Feb. 15, 1942.

Captain Francis H. Fox III

The Bronze Star Medal, for distinctive service with the U. S. Army medical corps in France, was re-

cently awarded to Capt. Francis H. Fox, formerly of Arthur, Ill. Dr. Fox's citation stated that the award was presented for "service in connection with military operation against the enemy from Aug. 8 to Aug. 25, 1944." Dr. Fox graduated from Northwestern University Medical School, Chicago, in 1936 and entered the service March 30, 1940.

★ ★

8,000 WACS FOR HOSPITALS

To meet the grave challenge of mounting casualty lists and the consequently growing shortage of army nurses, General of the Army George C. Marshall has assigned to the Women's Army Corps the recruitment and training of a sufficient number of women to form 103 WAC medical units for assignment to sixty army general hospitals in this country.

To form these WAC medical units and have all 103 of them trained and functioning by midsummer, it will be necessary to enlist approximately 6,500 to 8,000 additional Wacs for work in army hospitals. The plan calls for the recruitment by training platoons of 6,170 women by May 1 for assignment to particular army general hospitals.

An accelerated training program has been set up for those women who come into the WAC for assignment to one of the training platoons. Their period of basic military training will be shortened to four and a half weeks, their course in medical technician school to six weeks, and the final period of their training will be on the job in an army general hospital. Their applicatory training in the hospital will be divided between classroom and duty in the wards for one month after their assignments to the general hospital.

★ ★

COMMISSIONING OF MEDICAL AND DENTAL STUDENTS

Commissioning of medical and dental students in the V-12 Program who are under 21 years of age at the time of their graduation from professional school is defined in a recent release (Navy V-12 Bulletin No. 273) issued by the Bureau of Naval Personnel, Washington, D. C., as follows:

As a result of the accelerated academic programs for medical and dental students in the Navy V-12 Program, it is anticipated that a limited number of such men will complete the requirements for graduation from medical or dental schools prior to their having attained the age of 21. As the laws of practically all the states require that applicants for license to practice medicine and dentistry be 21 years of age, it is considered highly desirable that such a requirement be maintained by the Medical Department of the Navy.

Therefore, in the event that a medical or dental student in the Navy V-12 Program completes his professional academic training before he attains the age of 21, he will be commissioned as Ensign H (P) (probationary) on graduation and will be assigned to active duty under the cognizance of the Bureau of Medicine and Surgery or, at his request, he may be released from active duty status until he has reached the age of 21. The services of such Ensigns H (P) assigned to active duty in the Navy will be utilized in laboratory work or in other duties not involving actual medical or dental treatment until they become 21 years of age, at which time they will be eligible for appointment as Lieutenants (jg), (MC), U. S. Naval Reserve, or Lieutenants (jg), (DC), U. S. Naval Reserve, and assignment to intern training or to general duty.

At the time recommendations for appointment to commissioned status on completion of requirements for graduation from medical or dental schools are forwarded in conformance with the requirements of reference (a), the commanding officer should recommend any man who will not have reached his twenty-first birthday for appointment as Ensign H(P) rather than Lieutenant (jg) (MC) or (DC) and, if the student wishes to exercise the privilege of requesting inactive duty, such written request will be forwarded by the commanding officer to this bureau via the Bureau of Medicine and Surgery.

★ ★

CHANGE IN NAVY NURSE CORPS REGULATIONS

Vice Admiral Ross T. McIntire, Surgeon General of the Navy, recently announced a modification in Nurse Corps regulations which will permit navy nurses now in service to marry without being required to resign. Liberalization of the marriage regulation is expected to help substantially in achieving the Nurse Corps's authorized strength, since more than 80 per cent of all separations from this branch of the service have been due to the marriage bar. The Navy will continue efforts, none the less, to commission 4,000 additional nurses by June 30 in order to meet needs imposed by expanding naval operations. There is no change in present policy which disqualifies married nurses for entrance into the Nurse Corps.

★ ★

NEW PLASTIC ARM SPLINT IN USE BY NAVY

A new plastic arm splint, devised by two naval medical officers to immobilize arm fractures rapidly, is now being shipped from the naval supply depot at Brooklyn to advanced overseas areas for utilization in the evacuation of battle casualties. The splint, made of a light, strong phenolic fabric board which is resistant to moisture, was designed by Captain French R. Moore (MC), U.S.N., head of the Combat Medical Planning branch of the Bureau of Medicine, and Comdr. P. J. O'Donnell (MC), U.S.N.R. With the new type splint all arm and fore arm fractures may be quickly immobilized, thus speeding up preparations for evacuating cases of this kind to rear area hospitals.

Original Articles

A STEP IN CANCER CONTROL

A Review of the First 600 Cases Examined by the Cancer Prevention Clinic

AUGUSTA WEBSTER, M.D., EVANGELINE STENHOUSE, M.D., ELOISE PARSONS, M.D., ALICE PHILLIPS, M.D., PEARL STETLER, M.D., MARGUERITE OLIVER, M.D., MARGARET AUSTIN, M.D., MARIE CONNELLY, M.D., MARIE ORTMAYER, M.D., BEULAH CUSHMAN, M.D.
CHICAGO

The vital statistics have shown a sharp increase in deaths from cancer in the United States in recent years. This is readily understandable because of the increase in skill in modern diagnosis, and the prolonged life span of the general population. The tragedy is that so many of these victims do not present themselves for treatment until the advanced stages of the disease, and hence the most skilled medical care is of little value to them. Diagnosis must be made early, and adequate treatment given, if these deaths are to be reduced.

There are numerous clinics already functioning for treatment and diagnosis of known pathology, but most of these do not make any provision for the apparently normal individuals who are desirous of physical examinations for the purpose of ruling out early cancer. Too often, if symptoms are the impetus which sends the patient to the doctor, the disease has already progressed to a dangerous degree.

Experiments in early detection of cancer through routine physical examinations were conducted recently in New York and Philadelphia. Doctor Elise S. L'Esperance founded, in 1937, the Strange Cancer Prevention Clinic at the New York Infirmary for Women and Children, and in 1940 established similar clinics at the Memorial Hospital. Doctor Catherine Macfarlane and co-workers in the Department of Gynecology of the Women's Medical College of Pennsylvania, in 1938, undertook to determine the value of periodic examinations in the detection of early cancer of the cervix and cancer of the breast.[1]

The American Society for the Control of Cancer has, through its educational unit, the Field Army, been conducting a campaign of lay education, the keynote of which has been thorough, periodic physical examinations, with emphasis on early detection and treatment of cancer, and of lesions suspicious of cancer. Stimulated by the accomplishments of the New York and Philadelphia clinics, and sponsored by the Illinois Division of the Field Army, under the able leadership of Mrs. Arthur I. Edison, State Commander, a Cancer Prevention Clinic was started in Chicago, May 13, 1943. Through the generosity of the board of Women's and Children's Hospital, clinic space was granted for this venture. Appointments are made through the Field Army office at 48 West Division Street, and the medical social workers, nurses, and clerical help are also supplied by the Field Army.

Before the clinic was established a plan of procedure was presented to, and approved by, the Council of the Chicago Medical Society. A committee of five members of the Chicago Medical Society was appointed by the president to

1. Journal A.M.A., Vol. 126, No. 14.

act in an advisory capacity. This committee has continued active, and has rendered valuable aid in establishing standards and policies.

The purpose of this clinic is to provide periodic examinations for apparently well women with a view to the early detection of cancer or pre-cancerous lesions. If suspicious lesions are detected, the patient is sent to her family physician for care. *No treatments* of any type are given by the clinic. Biopsies are not made because it is the belief of the staff that the private physician should have control over the diagnostic procedures, as well as, the plans for treatment. Patients are not accepted for examination who are under treatment for cancer. The purpose of this clinic is to detect early cancer, and to encourage regular examinations. Its purpose is *NOT* to check the diagnosis of other institutions or individual physicians.

The staff is entirely made up of women physicians; twenty-five in all have participated in the program. Dr. Augusta Webster is the Medical Director. The consultants give their time gratis, and represent the various specialists such as Dermatology, Gynecology, Ophthalmology, Otolaryngology, Radiology, General Surgery, Gastro-enterology, and Internal Medicine.

Each patient attends the clinic on two occasions; on the first visit a careful and detailed medical and social history is taken. A complete physical examination is made. Routine laboratory work includes urinalysis, red and white counts, hemoglobin, blood smear, blood serology, as well as, cervical and urethral smears. A fluoroscopic examination of the chest is made on all patients. Those who are able, pay a laboratory fee of five dollars, but anyone who cannot afford the fee is examined without charge.

The findings are summarized for the permanent record, and on the second visit are interpreted for the patient. Reinvestigation is made of any major pathology by one or more consultants, depending upon the nature of the findings on the initial examination. A verbal report is given to the patient, and when an abnormality is found she is told of the nature, but not the extent of the condition, and is advised to consult her family physician regarding care. She is told that her physician may obtain a detailed report of the examination, upon request, if he so desires.

Many constitutional diseases, in no way related to cancer, have been found in the course of the examination, as well as, a few definite malignancies, and a number of suspicious lesions which required further investigation. All of these individuals have been urged to consult doctors of their choice at an early date. Many apprehensive patients with cancer phobia have been reassured after being carefully examined by two or more doctors, and told that they do not have any evidence of cancer.

It is increasingly evident that the public, as the result of lay education on cancer, has been made aware of the desirability of periodic, complete physical examinations. The clinic appointments are now filled for five months in advance, even though patient facilities have been increased to accommodate approximately one hundred new patients each month.

It is the purpose of this paper to report the first six hundred patients who were examined, representing approximately the first year's work. In the interest of accuracy the report is presented in sections, having been prepared by the individual doctors who acted as consultants for the specific conditions found.

DERMATOLOGY

EVANGELINE STENHOUSE, M.D.

The importance of cancer of the skin should be emphasized. Statistics show that approximately 3% of cancers causing death arise in the skin. Cancer of the lip and mouth causes an additional 3.5% of all cancer death, so that more than 6% of such deaths are due to cancer of the skin, lip, or the oral cavity.

In this Cancer Prevention Clinic the patients are referred to the dermatologist by the examining doctor. An attempt is made to limit the referrals to those patients with cutaneous lesions which might possibly be cancerous or precancerous, although all patients with doubtful lesions of the skin are included.

Out of 500 patients seen in the Clinic, 201 were referred to the dermatologist. A dermatological consultant was not available in the period during which the first one hundred patients were examined. Of these 201 patients, 8 had conditions diagnosed clinically as carcinoma, 5 as suspected melanoma, and 12 as precancerous dermatoses.

Clinically Carcinomas. — Of the eight patients with suspected carcinoma, one, aged 70, had an extensive ulcerating basal-celled carcinoma of the scalp. Another patient, aged 74, had typical basal-celled carcinomas on the nose and forehead, and an advanced carcinoma of the pelvis. Both of these patients have since been treated in tumor clinics.

A third patient, aged 66, had a large superficial erythematous basal-celled carcinoma above the left iliac crest, which had been disregarded by several physicians whom she had consulted previously. The diagnosis was verified by biopsy, and treatment was instituted.

Three patients, aged 45, 53, 74, had tumors on the cheek, which clinically were basal-celled carcinomas. One patient, aged 47, had a small tumor at the inner canthus of the right eye. One patient, aged 47, had a superficial lesion on the right breast which was suggestive of an intraepidermal cancer or Bowen's disease. These patients were urged to return to their own physicians at once, and reports were sent to the physicians if the patients desired.

Suspected Melanomas. — Of the five patients with lesions suspected of being melanomas, one, aged 67, had a small, slate gray, elevated tumor on the right cheek. This patient also had numerous pigmented and non-pigmented nevi on the face and back. The second patient, aged 53, who consulted the dermatologist because of Xanthelesma of the upper eyelids, had a dark purplish tumor on the right upper arm. A third patient, aged 59, had a small hemorrhagic tumor on the left index finger, and two patients had small, bluish black tumors on the thigh, which had increased in size recently. All were urged to report at once to their physicians for wide surgical excision and biopsy of the tumors.

Precancerous Dermatoses. — Four patients were found to have keratoses (precancerous) on the hands or face. Eight patients had tumors which could not be diagnosed clinically but which needed microscopic investigation. Of these, two had subcutaneous nodules on the legs and buttocks, and one had a lesion on the shoulder where it was irritated by the shoulder straps. One had a pedunculated non-pigmented tumor on the left cheek which bled easily; one had a small, bluish black tumor on the dorsal aspect of the hand; another had a painful tumor on the arm (with history of carcinoma in the family); another had a small painful tumor embedded within the abdominal wall. The eighth patient had three small hemorrhagic tumors on the right major labium and because of the location and possibility of irritation, surgical excision was advised.

All of these patients were advised to have further medical study.

Pigmented and Non-Pigmented Nevi. — Eighty-five patients were seen with pigmented and non-pigmented nevi. Of these, eight were referred for treatment because of the danger of trauma or infection. One patient had a large verrucous nevus in the inguinal area. Two had pigmented nevi on the face, one on the lower lip and one on the cheek, from which both patients constantly plucked hairs. One patient had a nevus which had recently become scaly, one had a melanotic nevus on the left buttock, one had a pedunculated, pigmented lesion in the inframammary area which had recently become sensitive. The possibility that it might be an accessory nipple was considered. It was emphasized to all the other patients that any enlargement or deepening in the color of any of these lesions should be reported at once to a dermatologist.

Other dermatoses found in these 201 patients were as follows: 15 patients with seborrhoeic keratosis (senile wart) (in two of these patients lesions were noted which showed signs of inflammation. Both were benign on microscopic examination); 5 patients with acne vulgaris; 3 with verruca vulgaris; 4 with lichen simplex chronicus; 4 with sebaceous cysts (2 scalp, 1 cheek, 1 major labium); 6 with fibromas; 3 with psoriasis; 2 with dermatomycosis; 2 with onychomycosis; 10 with lipomas; 10 with papillomas; 7 with senile angiomas; 2 with seborrheic dermatitis; 2 with leukoplakia (questionable); 10 with pruritis ani et vulvae; and various miscellaneous dermatological conditions such as lupus erythematousus, neurofribromatosis, psoriasis, verruca juvenilis, rosacea, tinea versicolor, purpura and vitiligo.

Three patients were seen with tumors on the gingival mucous membrane. Two of them were under treatment by their dentists. The third had a cystic tumor from which serous fluid exuded. She was advised to secure expert care.

Two patients consulted the dermatologist for observation of sites of treated malignant lesions. In both instances no recurrence was observed, and the patients were reassured.

COMMENTS

Since many of the malignant and premalignant lesions are inconspicious, and escape the attention not only of the patient, but often of the physician, it is advisable to examine the patient completely, while undressed, including the oral mucous membrane and the genitalia.

Cancer of the skin can be controlled more readily than cancer in any other portion of the body. Not only is the skin easily examined, thereby making it possible to detect the tumors in the earliest stages, but treatment is comparatively simple if instituted early.

BREASTS

ELOISE PARSONS, M.D., ALICE PHILLIPS, M.D., PEARL STETLER, M.D.

There were 10 proved cases of carcinoma of the breast found in the first 600 cases examined. The breasts in the patients were carefully examined by palpation and transillumination. No biopsies were taken in the clinic, and no duct injections were made.

Pain in the breasts or sensitive breasts was the complaint of 42 women. There were no findings in 75% of these, and the pain was explained as being of endocrine origin as it was influenced by menstruation. The average age of those complaining of sensitive breasts was 44 years. There were 3 whose pain was located over a rib, and 2 whose pain was due to improper fitting brassieres. One had pain from scars of a dog bite. In no case in which pain was the complaint was there a mass found which required a biopsy, and in only 3 cases a cystic mastitis was found.

Lumps in the breast was the complaint of 26 women. Cystic mastitis was the finding in 8 of these, in 4 the breasts were normal. In 4 cases the diagnosis of carcinoma was obvious, and these already had glands in the axilla.

These were 5 cases in which tumors were found in women who were not conscious of the fact that there was any lump present, four of these proved to be malignant and one a benign cyst.

It is interesting to note that of the 19 breasts on which biopsy was requested, there is a report on 18, only one patient left the city and did not state whether or not she had followed the advice to see her physician in regard to the tumor found. A report of the biopsy on 8 of them proves them to be benign. The remainder have either been treated surgically, or by x-ray, and all are being observed either in approved tumor clinics or by competent private physicians.

There were 12 women who came to the clinic for a check-up on their breasts, who had previous surgery. Eight had breasts removed previously, and 4 had tumors removed. In one instance recurrence was found in axillary glands, and in another metastatic lung lesions were found under the fluoroscope, although no clinical evidence was found.

Previous injury to the breast was a source of worry to 3 women, and in these there were no pathological findings.

There were two pregnancies diagnosed in cases who complained of fluid from the nipple.

One child of 10 years was brought in because of the development of one breast and not the other. Aberrant breast tissue in the axilla was found in 2 patients. Pigmented naevi were present in 2 others.

COMMENTS

The findings prove that simple examination of the breast by trained observers is sufficient to detect carcinoma provided a biopsy is made of suspicious tumors. It also proves that cancer conscious women who are told that they have a tumor in their breast which needs a biopsy will not delay in having it made.

PELVIC EXAMINATIONS

ELOISE PARSONS, M.D., ALICE PHILLIPS, M.D., MARGUERITE OLIVER, M.D.

Gynecological complaints were not the predominating reasons which brought women to the clinic for examination. There were only 16.4% who had any complaint related to the generative tract. The complaints in these 99 women in many cases were multiple and are listed in Table 1.

Examination of the pelvis in women without doing a biopsy of the cervix or endometrial biopsy is unsatisfactory in the diagnosis of early carcinoma. In these first 600 women examined a careful bimanual examination and visualiza-

TABLE 1.

Symptom	Number of Patients
Pain	
low abdomen or pelvis	13
Backache	6
Profuse Menses	11
Irregular Menses	3
Bloody Discharge (not at menses)	12
Vaginal Discharge	18
Irritation of genitals	8
"Lump in Vagina"	3
"Womb Trouble"	3
Tumor Suspected	12
Dyspareunia	2
Sterility	3
Hot Flashes	15

tion of the vagina and cervix with a strong light was made by the original examiner and repeated in all cases in which there were any abnormal findings by another trained gynecologist. It will be interesting to compare these findings with the next group, in which the same examinations will be made and in addition a vaginal smear for carcinoma cells.

The pelvic findings listed below, include all those examined and not only the few who had complaints.

Finding	Number of Cases
External Genitals	
Kraurosis	1
Senile Pruritis and Vaginitis	16
Sebaceous cyst of labia	3
Lichenification	1
Enlarged Bartholin Gland	4
Urethral Caruncle	3
Vaginal cyst	1
Cystocele (with symptoms)	29
Cervix	
Lacerated or Hypertrophied	16
Erosions	73
Polyps	19
Trichomonas	5
Corpus	
Retroverted	18
Fibroids	35
Prolapse	13
Adnexal Mass or enlarged Ovary	
Right side	4
Left side	5
Bilateral	5
Tumor of Abdominal Wall	1
Stricture of the Vagina	1

Cervical Polyp. — Every patient who had a cervical polyp was advised to have it removed. Fifteen of the nineteen reported back that they had this done. There were no malignant polyps found so far as we know.

Cervical Erosions. — Cervical erosions were found in 73 cases. The patient was informed that the erosion was present, and was advised to have it treated. In only 7 of these was the appearance of the erosion suspicious enough to advise a biopsy. There is no report that a malignant condition was found.

Fibroids. — There were 35 (5.8% of 600) in whom fibroids were found. A number of these were found in women who had no knowledge of their presence. Of those who have had them surgically removed, the pathological diagnosis confirmed that of the original examination. No case of carcinoma or malignancy has been reported in this group.

Trauma of Childbirth. — Lacerated perineums, cystoceles and rectoceles were not considered pathological unless they produced symptoms. One woman aged 63 who had bleeding from a protruding cervix was operated by her family physician and the condition was reported benign.

Vaginal Discharge. — Vaginal discharge, not associated with erosions or polyps, was found to be due to trichomonas in 5 cases. The women were informed that a vaginal discharge was not normal, and were advised to have treatments to effect a cessation of it.

Previous Surgery. — Hysterectomy had been performed on 9 of these patients. In one there was a mass in the pelvis which proved to be a recurrent fibroid. There was a polyp in the cervical stump in one case which was benign. There was an eroded cervix left in one case, and this also proved to be benign. There were 5 who had previous radium treatment, one who had a diagnosis of carcinoma had no evidence of recurrence. There were 2 who had bleeding, 8 and 6 years after radium treatment, in one a curettage was negative, and the other has since had surgery, but no malignancy was found.

Five had, previously, ovarian cysts removed, no recurrence was found.

Vaginal Bleeding. — The twelve cases of vaginal bleeding, not associated with menstruation, were urged to have a diagnostic procedure done without delay. Reports on 6 of these state there was no malignancy found.

One woman of 72 who had a bloody discharge had an inoperable condition, and is receiving paliative treatment at a tumor clinic. One other woman of 55 who had post-menopausal bleeding had a very early adeno-carcinoma of the fundus and a hysterectomy was done.

COMMENTS

There were only 2 cancers found in the generative organs.

Early carcinoma of the cervix cannot be detected without carefully selected biopsies.

The detection of early cancer in the generative tract must be made by educating the patient to be checked regularly, and to note significant changes.

FLUOROSCOPIC FINDINGS

MARGARET AUSTIN, M.D., MARIE CONNELLY, M.D.

Analysis of the routine fluoroscopic findings in the first 600 cases examined in the Cancer Prevention Clinic reveals a large number of essentially negative chests — 402 or more than two-thirds of all cases examined. Corrected for those examinees who failed for some reason or other to appear for fluoroscopy after having had physical examinations the total number seen under the screen was 572, which makes the essentially negative fluoroscopic cases 70.7%. Abnormal cardiac silhouettes constituted 117 of the remaining cases; abnormal lung markings 37, and skeletal variations 16, these last named being kyphosis and scoliosis.

The other small group, abnormal lung markings, fell into the following categories:

Calcific Densities	5
Increased hilard or Broncho-vascular Markings	17
Parenchymal Changes	5
Adhesions	5
Mediastinal Shadows	1

In one additional case the fluoroscopy was negative, but the physical examination revealed rales in one lung base. Wherever the fluoroscopic findings were suspicious, chest films were requested; no active pulmonary lesions were found in such films. In only one case was a metastatic lesion seen under the screen; in that patient a mastectomy had been performed for malignancy in 1942, but no physical signs of metastasis were found.

The large number of abnormal cardiac silhouettes is grouped as follows:

Increase in Transverse Diameter of Heart to the Right	12
Increase in Transverse Diameter of Heart to the Left	64
Prominent Pulmonary Conus	27
Aortic Contour (enlargement)	6
Pericardial Adhesions	6
Aortic Variations	
Widening (of all or part of the arch)	10
Tortuosity	9
Calcification	1

It is to be mentioned that "increase in the diameter of the heart to the left" often included an additional note of aortic contour, which is not tabulated separately; "aortic contour" includes only those hearts of normal diameter.

The outstanding feature in the physical findings of those women falling in the second group is hypertension. (Here hypertension was taken arbitrarily to be a systolic blood pressure of 150 or more for women forty years of age or older, and a diastolic pressure of 90 or more for the same age group. Only two blood pressure readings were found in the younger group; 142/100 in a woman of 38, and 150/100 in another of 37). Approximately 55% of the women having cardiac enlargement to the left had hypertension, the readings varying from 160 to 220 systolic pressure, the mean being 180. It is interesting to note that 16 women with blood pressures ranging from 150 to 220, the majority at 160, had no fluoroscopic evidence of heart enlargement, although 3 of these showed aortic arch abnormalities. The remaining cardiac enlargements in this group appeared in women with a physical notation of obesity.

In four cases the hearts listed as having a prominence of the pulmonary conus presented apical heart murmurs; the others had no cardiac or pulmonary physical findings.

GASTROINTESTINAL RESUME'

MARIE ORTMAYER, M.D.

It is generally agreed by physicians that from 40% to 60% of patients have symptoms in the gastrointestinal tract, and by specialists in that field, that from 60% to 80% in their practices have functional disturbances. In our group of the first 600 patients 152 women registered some sort of complaint or finding in the G. I. tract. 19 were immediately called "Functional" with-

out further study recommended. 91 were referred for gastrointestinal study to their own physicians. The remainder had obvious pathology.

Positive findings were recorded as follows:

1 cauliflower-like mass in the rectal ampulla (clinically carcinoma)
5 tumors other than carcinoma (4 anal; 2 abdominal)
22 hemorrhoids
1 prolapsus recti
4 anal fissures or fistula
3 cryptitis or papillitis
19 rectoceles
9 herinas (post-operative, femoral, inguinal or vaginal)
2 inadequate anal sphincters
1 post-operative stricture of anal canal
1 tapeworm
1 appendicitis (lowgrade)
1 questionable Addisons Disease

To rule out, or to diagnose, gastrointestinal tumor by complete physical examination and history only, is obviously unsatisfactory, and it is surprising that so few as 91 (about 15%) were referred for gastrointestinal study with its attendant endoscopic, laboratory and x-ray studies. No doubt others among the 600 patients deserved such workups. In the field of patients with anemia, for instance, there were at least 11 in whom no adequate explanation for the anemia had been shown. These could well have been included in the group referred for complete gastrointestinal study, since the anemias were sufficiently marked to suggest bleeding from unknown source.

The women who come for this examination in the Cancer Prevention Clinic wish assurance that they do not have cancer, or wish to find it early. A large proportion of them have had relatives in their own generation or in the two preceding generations who have had cancer. 166 of these women gave a history of cancer in the family, often in several members. 59 did not know the location of the reported cancers, but among the remainder who located them, 36 said they were "stomach cancers" and 11 "bowel cancers." These figures are for obvious reasons unreliable, but they show that a high incidence of cancer in the families of the Clinic's patients may be a reason for the fear of cancer and the determination to seek aid in detecting it early.

Cancer in the hollow organs, such as the stomach and bowel, cannot be located early except with meticulous study. It would be interesting to know if such a study in the apparently "normal" woman, even the one without symptoms, would detect sufficient numbers of gastrointestinal tumors to justify the time and expense involved.

EYE EXAMINATION

BEULAH CUSHMAN, M.D.

In the routine eye examination the vision was recorded with and without glasses. Any pigmented spots in the conjuctiva or iris were located on a diagram. The optic nerve and media were examined through the undilated pupil.

In the 600 patients examined, 14 were found who had one or more pigmented nodules on the anterior surface of the iris of each eye, and 10 patients were found to have pigmented nodules on the anterior surface of the iris of one eye. They were called freckles of the iris. They were in patients with irides of hazel to tan shades, none were found in a true blue iris.

Tumors of the eye are rare, and any intraocular lesions will cause visual symptoms sooner or later and these patients will go to the eye physician directly.

SUMMARY

A review of the findings of the first 600 patients examined at the Cancer Prevention Clinic is presented.

No treatments are given at the clinic, and no biopsies are made.

Patients are referred to their private physicians for further diagnostic study and for treatment.

The number of positive malignancies is probably greater than reported, because not all of the private physicians have given us their findings.

Eight patients had skin lesions that were clinically carcinomas.

Five patients had suspected melanomas, and biopsies were advised.

Nineteen patients were advised to have breast biopsies. Eighteen of these complied, and eight proved to be carcinomas. Three of these eight were not aware of any breast pathology.

Two recurrences of breast malignancies were found. One had axillary glands, and the other had multiple metastatic tumors in the lung.

Seven patients were advised to have cervical biopsies. No positive reports have been received from this group.

Twelve patients had bleeding not associated with the menses, and were advised to consult their doctors. One of these was reported back as adeno-carcinoma of the fundus; another had an inoperable pelvic condition, and is receiving paliative therapy.

One patient had a friable, cauliflower-like mass in the rectal ampulla.

Numerous pathological conditions were found which were in no way related to cancer. These women were referred to their physicians for care.

CONCLUSION

Routine physical examinations of apparently well women are useful in the detection and control of cancer.

THE PATHOLOGIC BASIS FOR THE CLINICAL MANIFESTATIONS IN NEPHRITIS

JAMES P. SIMONDS, M.D.
CHICAGO

The kidneys perform several functions that are essential to the health and well-being of the individual. By filtration through the glomeruli they remove a watery solution of crystalloids, including waste products, from the blood. Reabsorption by the tubules returns to the blood stream substances, e.g., glucose and water, which the body cannot afford to lose. By transforming alkaline phosphate into acid phosphate, by manufacturing ammonia from urea and by dissociating considerable amounts of the salts of diacetic and beta oxy-butyric acids in diabetic ketosis, the kidneys aid in maintaining the alkali reserve and the acid-base balance of the body. They are directly, but to a greater extent indirectly, concerned in maintaining the water balance of the body. Renal ischemia or, as Page believes, an abnormal pulse pressure in the kidneys, is somehow concerned with increasing blood pressure.

Non-suppurative nephritis (Bright's disease) and vascular nephropathy affect these functions of the kidneys in varying degrees. These renal diseases manifest themselves by one or more of the following symptoms: albuminuria, edema, retention of nitrogenous waste products and hypertension. The underlying pathologic changes in glomerulonephritis and in vascular nephropathy are quite distinctive, and they can be easily differentiated microscopically. The clinical pictures and the mechanisms of death of the two types are usually clear. Glomerulonephritis is accompanied by albuminuria, sometimes massive in character and in some cases nephrotic edema results; the urea, non-protein nitrogen and creatinine of the blood reach high levels, and the usual termination is death from uremia. Vascular nephropathy, on the other hand, is associated with hypertension; nitrogen retention is usually not marked and death is most commonly due to congestive heart failure or to cerebral hemorrhage. But patients with glomerulonephritis sometimes die from congestive heart failure or cerebral hemorrhage; and those with vascular nephropathy occasionally succumb to uremia.

It is the purpose of this paper to explain the mechanism of the symptoms characteristic of each type of renal disease on the basis of the pathological changes in the kidneys. It should then be possible to understand why some cases of one type run an atypical course with the clinical manifestations of the other.

Each organ of the body functions through the medium of its own peculiar characteristic structural pattern. Alterations in this structural pattern induced by disease are the causes of the disturbances in function which are the symptoms of the disease. It is necessary, therefore, to review very briefly the anatomy and physiology of the kidneys.

Each human kidney is composed of approximately 1,000,000 anatomical and physiological units, or nephrons. Each unit consists of an afferent artery which breaks up into capillaries which form the glomerulus. This structure is invaginated into the upper end of a relatively long, tortuous tubule which is divided into a proximal convoluted portion, a hair-pin shaped portion or Henle's loop, and a shorter distal convoluted segment. The last of these discharges the finished product, urine, into the straight col-

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From the Department of Pathology, Northwestern University Medical School. Read before Joint Session on Medicine, Surgery, Public Health and Hygiene, Radiology, Obstetrics and Gynecology, and Pathology of Illinois State Medical Society, May 18, 1944.

lecting tubules through which it reaches the renal pelvis and thence the bladder.

The functional ability of the kidneys depends in a very peculiar way upon their blood supply, which is very abundant and amounts to about one liter per minute. Ninety percent or more of the blood entering these organs passes through the glomeruli. The unit system of the kidneys extends into the pattern of their circulation, for the blood which leaves a glomerulus supplies, through a second system of capillaries, the tubule which comes off from the glomerulus. Hence interference with the circulation through a glomerulus will alter the blood supply to its corresponding tubule and result in its atrophy or complete disappearance. Not only is the blood supply of the kidneys abundant, but, because of the peculiar arrangement of the renal arteries and their branches, the hydrostatic pressure of the blood in the glomerular capillaries is higher than that in any other system of capillaries in the body.

The walls of the glomeruli are semipermeable membranes, i.e., they permit the passage through them of water and crystalloids in solution, but prevent the passage of colloids, such as the plasma proteins. Glomerular filtration is a purely passive process. In accomplishing it the kidneys themselves do no work. The energy for this process is furnished by the heart by maintaining the hydrostatic pressure of the blood in the glomerular capillaries. But only a part of this pressure is available for filtration, because about one-third of it is counteracted by the opposing osmotic pressure of the plasma proteins. The "effective filtration pressure" is believed to be about 45 millimeters of mercury. As long as a glomerulus receives a sufficient amount of blood under an adequate filtration pressure, it will perform its function of filtering waste products from the blood. As long as the blood supply to the glomerulus is sufficient in amount and pressure for filtration, it will also be adequate to maintain the functions of reabsorption, transformation, manufacture and dissociation of the tubules.

It may, therefore, be stated as a general principle that the fundamental basis of renal insufficiency is a disturbance of the renal circulation that reduces the blood supply to the glomeruli. This may be due either to changes in the arterioles that prevent access of a sufficient quantity of blood to the glomeruli, or to changes in the glomeruli themselves that render their capillaries impervious to blood.

Long continued clinical hypertension is almost invariably due to some disturbance of the circulation in the kidneys. This may be either ischemia, as suggested by Goldblatt, or reduction of pulse pressure within the kidneys, or to some other less well understood alteration of the flow of the blood through these organs. Inasmuch as alterations in the renal circulation occur in both glomerulonephritis and in the vascular nephropathy, hypertension occurs in both these types of renal disease. The circulatory disturbance causes the kidneys to produce renin which is activated in the blood stream to angiotonin which, in turn, causes vasoconstriction. Although the basic pathology in the kidneys in vascular nephropathy and in glomerulonephritis are quite different in kind, both have similar effects on the renal circulation and both are associated with hypertension.

The lesion in vascular nephropathy probably develops in three stages. In the first stage the change is apparently a purely functional vasoconstriction and is therefore not readily demonstrable as a structural change. The prolonged constriction of the arterioles and the accompanying rise in blood pressure causes the development of the second stage, characterized by hypertrophy of the muscular coat and hyperplasia of the elastic lamina of the afferent arteries. Continued constriction of the hypertrophied muscular coat may interfere with the nutrition of the walls of the vessels and thus leads to the third stage, namely, hyaline degeneration of the arterioles. Hypertension which has existed for a sufficient time is almost invariably associated with one or both of the easily demonstrable structural changes characteristic of the second and third stages.

Differentiation of the three stages of essential hypertension has important implications in the treatment of this condition. During the first and second stages, the muscular coats of the arterioles are capable of responding to vasomotor impulses and they may be made to dilate and thus lower arterial pressure. But when the arterioles have become mere structureless, hyaline tubes they are incapable of re-

sponding to vasomotor impulses and can no longer either contract or dilate. Therapy of any kind in the third stage is likely, therefore, to be ineffective. The changes in functional capability of the walls of the arterioles in the different stages of vascular nephropathy may, therefore, be a factor (1) in the variable response of different hypertensive patients to such depressor substances as sodium thiocyanate and colloidal sulphur, and (2) in the unpredictable results of sympathectomy as a mode of treatment of hypertension.

While the alterations in the circulation in the kidneys in essential hypertentions are obviously due to the functional or structural changes in the arterioles, the renal circulatory disturbances in glomerulonephritis are the result of changes in the glomeruli themselves. In the glomeruli two characteristic types of inflammatory reaction are seen. In some forms of acute nephritis, as for example, that which follows scarlet fever, the reaction is exudative in character. (Figure 1a) Free drainage down the tubule permits removal of the exudate as rapidly as it is formed. For this reason this type of nephritis usually runs an acute course and ends in complete recovery. On the other hand, in some cases the inflammatory reaction is proliferative, rather than exudative, (Figure 1b). Proliferation of the endothelium of the glomerular capillaries, causes a marked disturbance in the circulation of blood not only through the glomeruli themselves but also through the system of capillaries upon which the tubules are dependent for nutrition and oxygen. This structural change in the glomeruli is permanent, the successive involvement of glomeruli is continuous and the resulting hypertension is progressive.

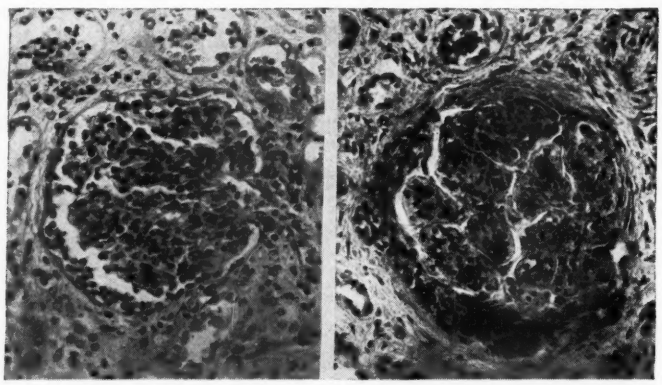

Figure 1a. Figure 1b.

Figure 1a. Exudative type of acute glomerulonephritis from a case of scarlatina. Note the polymorphonuclear leucocytes in the glomerular capillaries, in the capsular space and in the tubules, indicating free drainage.

Figure 1b. Proliferative type of acute (or subacute) glomerulonephritis. Note the hypercellularity, the lobulation and the bloodlessness of the capillary loops of the glomerulus.

The following cases illustrate the fact that each type of renal disease is associated with hypertension and patients with either type may die from uremia, from congestive heart failure, from cerebral hemorrhage, or from a combination of congestive heart failure and renal insufficiency. None of these patients had disease of the heart valves or coronary arteries.

Case 1. Male. Age 54. Onset with dyspnoea six months before death, with frequent vomiting and headache. Edema of the ankles began two months before death, increased steadily until, in the last few weeks of life, it became massive and generalized. Blood pressure ranged from 220/140 to 235/145. Urinalysis: — Specific gravity, 1.015; small amount of albumin and a few hyaline and granular casts. Blood chemistry: — N. P. N. 66.7, B. U. N. 25.6, creatinine, 2.6, mg. percent.

Autopsy: — Generalized edema; ascites; bilateral hydrothorax. Passive congestion of lungs, liver and

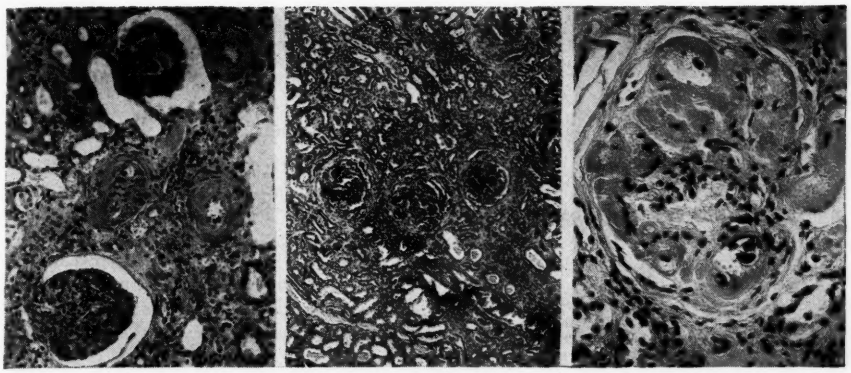

Figure 2a. Figure 2b. Figure 2c.

Figure 2a. Case 1. Arteriolonephrosclerosis. Note the hypertrophied walls of the arterioles — second stage of the vascular change in hypertension — and the well preserved glomeruli.

Figure 2b. Case 2. Chronic glomerulonephritis with hypertension. Note the proliferative changes in the glomeruli that interfere with circulation in the kidneys, a structural basis of hypertension.

Figure 2c. Case 3. Arteriolonephrosclerosis. Note the hyaline wall of the arteriole (right center) which is the third stage in the vascular changes in hypertension; and the hyaline thickening of the walls of the glomerular capillaries, the basis of renal insufficiency in this case.

spleen. Heart weighed 550 grams; kidneys, 90 grams each.

Diagnosis: Arteriolonephrosclerosis, second stage (Figure 2a); hypertension; hypertrophy of the heart with congestive heart failure; moderate renal insufficiency.

Comment: The microscopic changes in the kidneys of this patient were those characteristic of the second stage of long continued hypertension. Although the kidneys were not functioning normally, the nonprotein nitrogenous constituents of the blood had not reached definitely dangerous levels. Death resulted from congestive failure of the markedly hypertrophied heart.

Case 2. Male. Age 21. Entered the hospital in a state of congestive heart failure, with marked edema and dyspnoea and died six hours after admission. No satisfactory history was obtained.

Autopsy: Generalized edema; ascites; bilateral hydrothorax. Heart weighed 510 grams; kidneys, 240 and 250 grams, respectively.

Diagnosis: Chronic glomerulonephritis (Figure 2b); hypertension; hypertrophy of the heart with congestive heart failure.

Comment: In microscopic sections of the kidneys of this patient the small arteries and arterioles do not stand out with marked prominence as in Case 1. The obstruction to renal blood flow, therefore, was in the glomeruli themselves and not in the blood vessels. Four glomeruli are shown in Fig. 2b. They are hypercellular and almost bloodless. This patient probably suffered renal insufficiency, but the effects of his hypertension were more marked and death resulted from congestive failure of the hypertrophied heart.

Case 3. Male. Age 72. Entered hospital in a state of congestive heart failure. Blood pressure 150/86. Trace of albumin in the urine. Mosenthal test meal: Day urine, 522 c.c. with a specific gravity ranging from 1.008 to 1.010; night urine, 500 c.c. with specific gravity of 1.011. Blood chemistry; B. U. N. 122, creatinine, 10 mg. per cent.

Autopsy: Generalized edema; hydrothorax. Heart weighed 590 grams; kidneys, 70 and 80 grams respectively.

Diagnosis: Arteriolonephrosclerosis, third stage (Figure 2c); hypertension; hypertrophy of the heart with congestive heart failure; renal failure and uremia.

Comment: The kidneys of this patient showed the changes in the arterioles characteristic of vascular nephropathy. The thickening and hyalinization of the walls of the afferent arterioles extended into the glomeruli, involved the walls of their capillaries and thus reduced their capacity for filtration. The blood pressure recorded was not exceptionally high, but the marked hypertrophy of the heart is evidence that the pressure had been much higher. The renal failure in this case was the combined result of the changes in the glomeruli and the reduction in systemic blood pressure which rendered it impossible for sufficient blood under adequate filtration pressure to reach any remaining permeable glomeruli.

In chronic glomerulonephritis the characteristic alterations in the glomeruli are marked by increased cellularity and varying degrees of

bloodlessness. These changes produce two important results. In the first place they interfere with the renal circulation and thus furnish a structural basis for hypertension. These changes also reduce the quantity of blood which can pass through the affected glomeruli and, by thickening of their walls, hinder the free filtration from such blood as may enter capillary loops that are still pervious. Both of the clinical manifestations of chronic glomerulonephritis — hypertension and retention of nitrogenous waste products — progress simultaneously but at different rates. Case 2 above illustrates the fact that in chronic glomerulonephritis the effects of hypertension may exceed the tendency to nitrogen retention and death results from congestive heart failure. On the other hand in Case 3 with a typical microscopic picture in the kidneys of long continued hypertension, nitrogen retention developed, probably due in part to the reduction in blood pressure, and death resulted from the combined effects of hypertension (congestive heart failure) and renal insufficiency (uremia).

The following three cases illustrate the more usual course of chronic glomerulonephritis, ending in uremia, but at the same time accompanied by some degree of hypertension.

Case 4. Male. Age 22. One year before death this patient was in the hospital for a few days with abdominal pain, diarrhea and loss of weight. At that time albuminuria was discovered, and the blood pressure was 124/70. Five days before death he was found unconscious with tonic and clonic convulsions. His blood pressure at this time was 178/128, a rise of 54 mm. Hg. in the systolic pressure above that of a year previous. Urinalysis: Specific gravity, 1.011 to 1.015; albumin 3 plus; hyaline casts. Blood chemistry was not done because it was thought that he was suffering from some lesion of the brain. The spinal fluid was negative.

Autopsy: Slight edema of the brain, but none elsewhere in the body. The heart weighed 370 grams; the kidneys, 150 grams each.

Diagnosis: Chronic glomerulonephritis with marked fatty changes in the tubular epithelium (Figure 3a); moderate hypertension; probable uremia.

Comment: The kidneys of this patient showed the characteristic microscopic picture of chronic glomerulonephritis with hypercellular and almost bloodless glomeruli. These glomerular changes interfered with the circulation through the kidneys and furnish a structural basis for the hypertension that was observed. However, the hypertension had not reached extreme levels, had existed for somewhat less than a year and the heart was not definitely hypertrophied. There was no evidence either clinically or at autopsy of congestive heart failure. Although the non-protein nitrogen of the blood was not determined the changes in the glomeruli were so marked and so extensive that it appears safe to assume that death resulted from uremia.

Case 5. Male. Age 30. The onset occured five years before death with lumbar pain; cloudy, sometimes blood-tinged urine; some swelling of the face; and numbness of the extremities. He entered the hospital two weeks before death complaining of general weakness, pains in various parts of the body and occasional vomiting. Urinalysis: Specific gravity, 1.010; albumin; many granular casts. Blood chemistry; N. P. N. 100, creatinine, 6.43 mg. per cent. Blood pressure was not recorded.

Autopsy: The heart weighed 450 grams, the kidneys 90 grams each. Slight ascites, chronic adhesive pericarditis and terminal bronchopneumonia were also present.

Diagnosis: Chronic glomerulonephritis (Figure 3b); moderate hypertrophy of the heart; renal insufficiency; uremia.

Comment: In miscroscopic sections many glomeruli had been completely transformed into hylaine scars. Most of those that remained were very cellular and contained little blood. In spite of the prolonged course of the disease — five years — vascular changes in the renal arteries and arterioles were not a prominent part of the microscopic picture. Hypertrophy of the heart was only moderate in degree. During his final stay in the hospital he was in a uremic state although the immediate cause of death was probably the bronchopneumonia.

Case 6. Female. Age 34. Two and a half years before death, this patient developed a slight edema of the face, albuminuria, with a few red blood cells and granular casts in the urine. These symptoms came on seven days after a slight sore throat. The acute symptoms subsided in about ten days, but the albuminuria continued and became massive. The serum albumin of the blood progressively diminished, marked generalized edema developed and progressed for about six months. During this period the blood chemistry was normal. With a high protein diet and sixty-eight transfusions over a period of six months the serum proteins increased and the edema disappeared. During the following six months the albuminuria decreased. Two years after the onset the urea clearance diminished; nitrogen retention began and steadily increased; hypertension developed; and the patient died in uremia two and a half years after the onset of the disease.

Autopsy: A complete record of the postmortem examination is not available. The heart was said to be moderately hypertrophied; the kidneys were small.

Diagnosis: Chronic glomerulonephritis, very late stage (Figure 3c) with most of the glomeruli reduced to hyaline scars and marked atrophy and complete disappearance of most of the tubules; previous

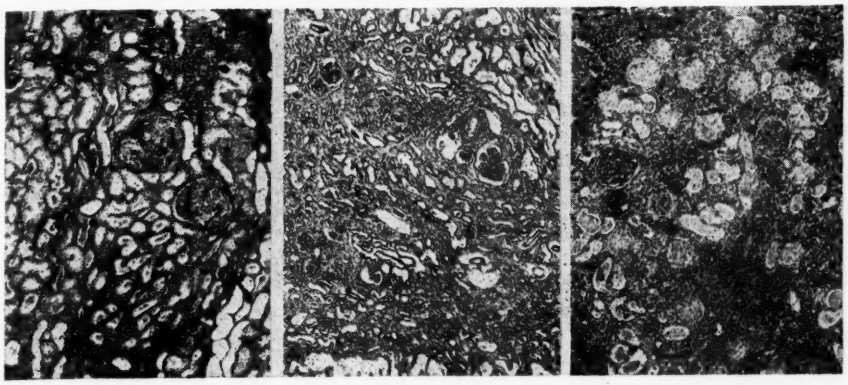

Figure 3a. Figure 3b. Figure 3c.

Figure 3a. Case 4. Chronic glomerulonephritis with uremia. Slight hypertension. Note the proliferative changes in the glomeruli that interfere with circulation (basis of hypertension) and with filtration (basis of renal insufficiency.)

Figure 3b. Case 5. Chronic glomerulonephritis of five years duration. Note the shrunken, bloodless glomeruli, the basis of renal insufficiency.

Figure 3c. Case 6. Very late stage of progressive glomerulonephritis with uremia. None of the glomeruli in the field are normal, and of the 17 visible only three appear capable of receiving any blood.

typical nephrotic edema; later hypertension and uremia.

Comment: This case illustrates most of the events that may occur in the course of chronic glomerulonephritis. It differs from the usual case chiefly in its definite onset. Of particular interest was the occurrence of edema at two stages of the disease.

In the acute period, toxic injury of the capillaries of the body increased their permeability, permitting serum albumin to escape through the capillary walls where it held sufficient water in the tissue spaces to permit the formation of visible edema in the loose tissues of the face. When the capillaries regained their normal selective permeability, this edema disappeared.

The mechanism of other types of edema are somewhat more complicated. A normal exchange of fluid constantly occurs between the blood in the capillaries and the surrounding tissues. Three factors concerned in this exchange are, the hydrostatic pressure of the blood in these vessels, the osmotic pressure of the plasma proteins, and the area of capillary wall upon which they exert their effects. The first of these tends to drive water from the blood into the tissues; the second to draw water from the tissues into the blood. The hydrostatic pressure falls during the course of the blood through the capillaries while the osmotic pressure remains essentially constant. The neutral point at which the two pressures are equal is so situated normally that the quantity of water leaving the capillaries is nearly equal to that which returns to the blood. This balance may be upset either by a delayed fall in hydrostatic pressure or by a lowering of the concentration of the plasma proteins. The first of these is the mechanism of cardiac, the second, that of nephrotic, edema.

The prolonged massive albuminuria in this patient produced a negative balance in the plasma proteins, for the body was losing them in the urine more rapidly than it could reproduce them. Ultimately, the plasma proteins (particularly serum albumin) fell below a critical level and the neutral point was shifted so far toward the venous ends of the capillaries that more water was driven into the tissues by the hydrostatic pressure of the blood than could be drawn back from them by the lowered osmotic pressure of the plasma proteins. This was typical nephrotic edema. In this case a high protein diet and numerous transfusions aided in supplying the needed plasma proteins and the edema disappeared at an earlier date than might have occurred otherwise. But there was another factor in the disappearance of the edema. As the disease progressed more and more glomeruli were destroyed. Finally a stage was reached when the number of functioning glomeruli, through which serum albumin was lost, was so diminished that the daily loss of plasma proteins became less than the capacity of the body to rebuild them. The level of plasma proteins was gradually increased above the critical level and the edema disappeared spontaneously. Thus, the disappearance of nephrotic edema may not be a sign of improvement, but, rather, of increasing severity of the disease.

The available records (death occurred in another state) do not indicate whether this patient again developed edema in the terminal stages of the disease. But since this does occur in some cases of chronic glomerulonephritis a few remarks concerning it may be pertinent. Inasmuch as most patients with very chronic glomerulonephritis suffer from hypertension, they may develop congestive heart failure and thus

become victims of cardiac edema. In congestive heart failure, the increased venous pressure causes a slower fall in hydrostatic pressure of the blood in its course through the capillaries. The neutral point at which the hydrostatic and osmotic pressures are equal is shifted toward the venous end of the capillaries. More water therefore escapes from the capillaries into the tissues than can be drawn back into the blood stream through the diminished area of capillary walls through which the plasma proteins can exert their effect. This is cardiac edema.

Since a patient with chronic glomerulonephritis nephritis may develop edema at three stages in the course of the disease, each with a different mechanism, the term "nephritis with edema" may be misleading.

SUMMARY

1. Each kidney is composed of approximately one million units, each unit essentially complete in itself, with its characteristic anatomic structure, its functions and its own blood supply. The different parts of each unit probably perform the following functions. The glomeruli furnish a filtrate consisting of a solution not only of waste products but of all the crystalloidal substances in the plasma. The proximal convoluted tubules, by selective reabsorption, return to the blood substances which the body can ill afford to lose. Henle's loop reabsorbs water and concentrates the urine. The distal convoluted tubules alter the reaction of the urine and thus conserve alkali reserve and maintain the acid-base balance of the body. The parts of each unit are interrelated through their common blood supply which consists of two systems of capillaries — the glomerular and the peritublar. Interference with the blood supply of the glomeruli will also affect that of the tubules. Hence in disease of the kidneys the unit suffers as a whole.

2. The two chief types of non-suppurative renal disease are (a) glomerulonephritis (Bright's disease) and (b) vascular nephropathy. Although these two types differ markedly in their basic pathology, both interfere with the circulation through the kidneys. Vascular nephropathy is associated with hypertension and death usually results from congestive heart failure or from cerebral hemorrhage. Glomerulonephritis, because the changes in the glomeruli reduce filtration, usually ends in uremia. But occasional patients with vascular nephropathy die from renal insufficiency, while those with glomerulonephritis sometimes succumb to congestive heart failure. The six cases reported above illustrate the mechanisms by which either type of disease may run an atypical course with the clinical manifestations of the other.

3. In the early stages of glomerulonephritis, the inflammatory reactions in the glomeruli may be either exudative or proliferative in character. The exudative form, because of free drainage through the tubules, usually heals without serious consequences. The proliferative lesion, unless from some unknown reason the process ends spontaneously, progresses to a fatal termination.

4. Patients with glomerulonephritis frequently suffer from edema. This edema may occur in three different stages of the disease, and its mechanism is different in each stage. In acute glomerulonephritis the systemic capillaries are injured, their walls become more permeable and serum albumin escapes into the tissues where it holds water thus giving rise to edema. In the nephrotic stage the serum proteins become depleted as a result of loss of serum albumin in the urine. When the quantity of serum albumin in the plasma falls below a critical level, the normal balance between the hydrostatic pressure of the blood and the osmotic pressure of the plasma proteins is so disturbed that more water leaves the capillaries than returns to them and edema of the tissues results. Later, the nephrotic edema disappears spontaneously. This is not a sign of improvement because it is due to progressive destruction of glomeruli. In the very late stages of chronic glomerulonephritis, hypertension develops and cardiac edema may follow the onset of congestive heart failure. The edema of vascular nephropathy is due to congestive heart failure.

IMPORTANT

Send changes of address to 30 N. Michigan Ave., Chicago 2, Illinois enclosing label from a copy showing your old address. Changes received after the 1st of the month will not go into effect until the following month.

CERTAIN ASPECTS OF THE NEWER INSULINS

HENRY T. RICKETTS, M.D.
CHICAGO

Crystalline Insulin — The physiologic effects of crystalline insulin, known technically as "insulin made from zinc insulin crystals," are so similar to those of regular or standard insulin that for practical purposes the two can be considered identical[1,2]. With both preparations the blood sugar starts to fall within 15 to 30 minutes after injection and, if food is not given, reaches its minimum in from 4 to 6 hours (Figure 1.). Since the crystalline product is

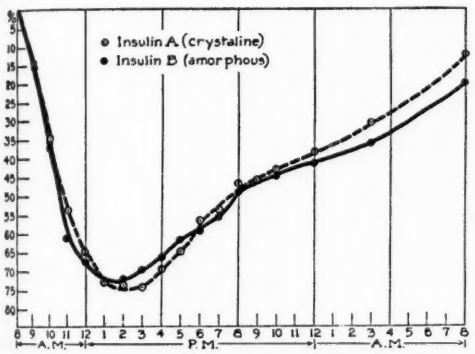

Chart 2.—Percentage of fall in values for blood sugar after injection of insulin A and insulin B. Each point represents the average of the results in from six to five patients (lines 3 and 4 in the table). The two insulins were tested on each subject.

Figure 1. (From Ricketts, H. T. and R. M. Wilder. J.AM.A. 113:1310. 1939.)

chemically purer and no more expensive, it would seem wise to employ it to the exclusion of regular insulin when a quickly acting substance is desired. This form of insulin is now used principally as an adjunct to protamine zinc insulin, either injected separately or mixed with the latter, and as the agent of choice in diabetic emergencies such as acidosis and surgical operations.

Protamine Zinc Insulin. — The key to an understanding of protamine zinc insulin is that, when given daily, its action is relatively constant throughout the 24 hours. The common statement that its hypoglycemic effect is slow in onset and reaches maximum intensity in from 18 to 24 hours after injection is true only for the first dose. The constancy of action of protamine zinc insulin was demonstrated in a series of hospitalized patients by first giving them their insulin in the morning for several days and then in the evening for a similar length of time[3]. Blood sugar curves were constructed for each period on the basis of samples taken four times daily. It was reasoned that if the curves obtained as a result of the morning injections were similar to those obtained by the evening injections, the activity of the insulin could be regarded as constant. If, on the other hand, the two curves differed widely, it could be assumed that no constancy of action was involved. The

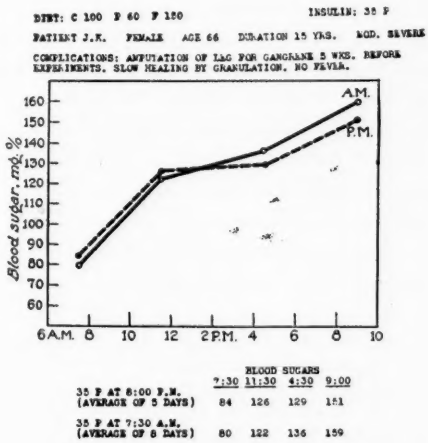
DIET: C 100 P 60 F 150
INSULIN: 35 P
PATIENT J.K. FEMALE AGE 66 DURATION 15 YRS. MOD. SEVERE
COMPLICATIONS: AMPUTATION OF LEG FOR GANGRENE 5 WKS. BEFORE EXPERIMENTS. SLOW HEALING BY GRANULATION. NO FEVER.
A.M.
P.M.
Blood sugar, mg. %
6A.M. 8 10 12 2P.M. 4 6 8 10
BLOOD SUGARS
7:30 11:30 4:30 9:00
35 P AT 8:00 P.M. (AVERAGE OF 5 DAYS) 84 126 129 151
35 P AT 7:30 A.M. (AVERAGE OF 6 DAYS) 80 122 136 159

Figure 2. (From Ricketts, H. T. Am. J. Med. Sci. 201:51. 1941.) Blood sugar curves with protamine zinc insulin given in the morning (A.M.) and in the evening (P.M.).

results are shown in Figure 2 and Figure 3, which are illustrative of all but one of the patients studied. The charts show that essentially the same daily blood sugar curve results, regardless of whether the protamine zinc insulin is given in the morning or in the evening. In Figure 3, moreover, it is evident that the curves obtained with protamine zinc insulin given either in the morning or in the evening (Curves PA and PP) are similar in shape, although at a lower level, to the curve obtained when no insulin was given (Curve X). The glycemic level was apparently lowered *in toto* by the protamine zinc insulin, a phenomenon which could only have occurred if this substance had been acting

From the Department of Medicine, School of Medicine, and the Frank Billings Medical Clinic, University of Chicago. (Condensed from a paper read before the Academy of Medicine, Cleveland, Ohio, February 18, 1944.)

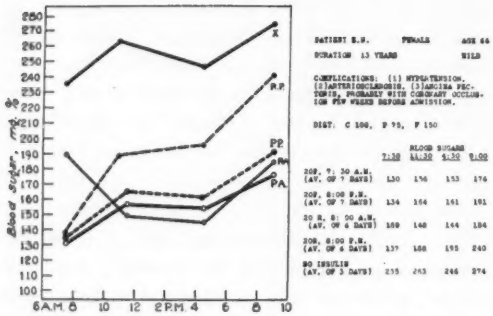
Blood Sugar, mg. %
6A.M. 6 10 12 2P.M. 4 6 8 10
X
R.P.
P.P.
R.A.
P.A.
PATIENT E.S. FEMALE AGE 44
DURATION 13 YEARS WILD
COMPLICATIONS: (1) HYPERTENSION. (2) ARTERIOSCLEROSIS. (3) ACTIVE PEC-TORIS, PROBABLY WITH CORONARY OCCLUS-ION FIVE WEEKS BEFORE ADMISSION.
DIET: C 100, P 75, F 150
BLOOD SUGARS
7:30 11:30 1:30 5:00
208, 7: 30 A.M. (AV. OF 7 DAYS) 130 156 153 176
208, 5:00 P.M. (AV. OF 7 DAYS) 134 164 161 191
20 U. 5: 30 A.M (AV. OF 6 DAYS) 160 140 144 184
20U, 5:00 P.M. (AV. OF 6 DAYS) 137 168 195 240
NO INSULIN (AV. OF 3 DAYS) 235 263 246 274

Figure 3. (From Ricketts, H. T. Am. J. Med. Sci. 201:51. 1941. Blood sugar curves with protamine zinc insulin, regular insulin and with no insulin. P.A. — protamine zinc insulin given in the morning. P.P. — protamine zinc insulin given in the evening. R.A. — Regular insulin given in the morning. R.P. — regular insulin given in the evening. X — no insulin.

with unvarying intensity throughout each 24-hour period. That an insulin preparation (regular) which does not possess this constancy of action will produce dissimilar curves when given in the morning and in the evening is evident from Curves RA and RP.

The constancy of action of protamine zinc insulin, established independently by Mark[4], holds certain practical implications for the clinician:

1. It means that this form of insulin should no longer be regarded as having a period of maximum effectiveness. Although it is true that when given as a single dose to patients not receiving food it lowers the blood sugar to its minimum in from 12 to 18 hours, when used in the day-by-day treatment of diabetes it furnishes a continuous and relatively even supply of insulin from the subcutaneous depots. *Its action, once fully established, is maximal at all times.* The patient, therefore, can take his injections at whatever time of day is most convenient, provided that they are made 24 hours apart.[5]

There is no need for two doses in one day.

2. Protamine zinc insulin, administered daily, *tends to stabilize the blood sugar during fasting* at a certain level, the height of which depends upon *the size of the dose. The blood sugar is pushed* above this level by food during the day and grad*ually returns to it when the patient abstains from* food during the night. If nocturnal hypoglycemia occurs *it is not because of any greater intensity of* insulin action at this time but because the amount is so large as to render the basic level too low. It is for this reason that the best criterion for the proper dose is the height of the fasting blood sugar.[6]

3. The constant action of this insulin explains why it regulates the mild diabetic very well, but cannot be expected to control postprandial hyperglycemia in the severe diabetic whose low pancreatic reserve does not permit the secretion of extra insulin in response to the ingestion of food. Such cases require a supplementary dose of quickly acting insulin given at the same time as the protamine, before breakfast. This procedure results in satisfactory control during the morning hours and often during the afternoon, but by supper time the effect of the regular or crystalline insulin is exhausted, and either another dose must be given at that time or considerable glycosuria during the evening must be accepted. In the absence of proof that brief glycosuria is harmful, however, it hardly seems worth while in most cases to subject the patient to the inconvenience of an evening injection.

Considerable difficulty is often encountered in the regulation with protamine zinc insulin of the so-called "brittle" diabetic. These patients, unstable at best, seem to be even more so when treated with this preparation, either alone or in combination with the quickly acting insulins. In such cases, if an amount of insulin is given which keeps the urine sugar-free at all times, the wide swings of the blood sugar will inevitably reach dangerously low levels on occasion, and severe hypoglycemic reactions will result. Since such reactions are undoubtedly more harmful than hyperglycemia, it is necessary to adjust the dose of protamine so that they never occur, even though such a dose will, in all probability, lead to intermittent or continuous glycosuria of moderate degree. The fact that glycosuria must be tolerated in this type of patient, however, does not relieve one of the duty adequately to control the blood sugar in other patients in whom it can be done safely.

Globin Insulin. — Globin insulin has recently been placed on the market. As illustrated in Figure 4, its action lies about midway between that of crystalline and that of protamine zinc insulin. It was hoped that such a preparation might take the place of separate injections of crystalline and protamine zinc insulin in the more severe cases, and that it might be as effective as any of the other forms of insulin in the management of the milder cases. In the latter category, it has proven about as satisfactory as, but not superior to, the older methods of

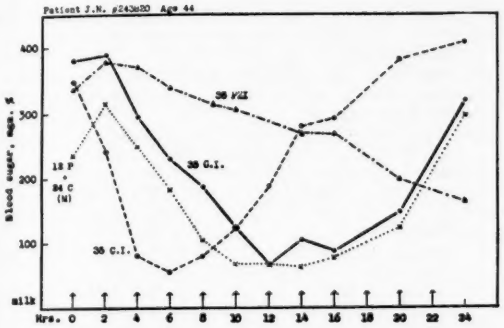

Figure 4. 24-hour blood sugar curves in the same patient with different forms of insulin.

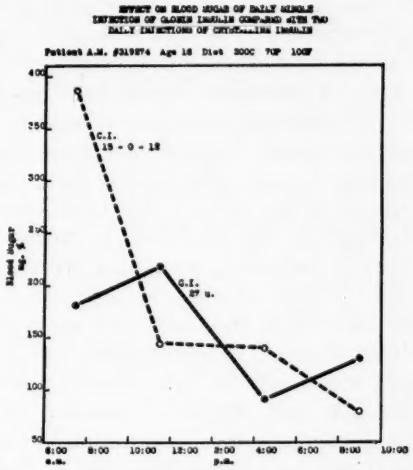

Figure 5. Each point on the curves represents the average of several determinations of the blood sugar for the time of day indicated on successive days. Meals were served at the usual hours.

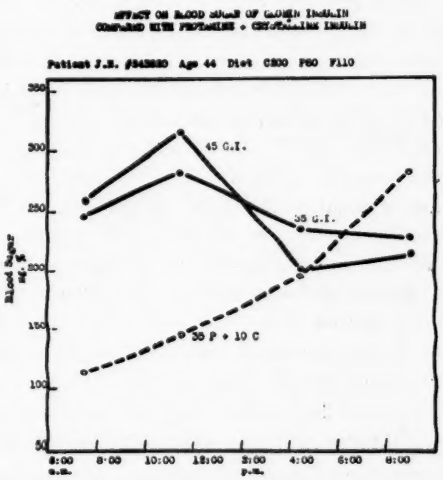

Figure 6. Each point on the curves represents the average of several determinations of the blood sugar for the time of day indicated on successive days. Meals were served at the usual hours.

treatment. In the former group, globin insulin has fallen short of the claim, made by its original proponents[7,8] that in the great majority of patients it gave better results than crystalline or protamine zinc insulin, even when given in simultaneous, separate injections. Its hypoglycemic effect does not begin for about 2 hours after injection. This delayed action often leads to glycosuria between breakfast and lunch, even though the breakfast be low in carbohydrate. The dose must therefore be administered an inconveniently long time (one to two hours) before the morning meal. Its maximum activity is reached, as a rule, during the afternoon, so that many patients are forced to take a mid-afternoon feeding to prevent hypoglycemia. By the same token, its greatest usefulness is in those patients whose blood sugar on dietary management alone tends to be highest at that time of day. It is a reasonable assumption that no insulin of intermediate characteristics such as globin can be expected to be equally effective in all types of diabetic patients. Its suitability must be determined individually for each patient. The best results will be obtained in those patients whose diurnal blood sugar pattern, determined by multiple estimations of the blood sugar or by fractional urinalyses, conforms to the action curve of the insulin in question. The variation in response to globin insulin in different patients is illustrated in Figure 5 and Figure 6. In the first instance, the material has an undoubted 24-hour effect, whereas in the second, this appears to be largely lacking.

Mixtures of Crystalline (regular) and Protamine Zinc Insulin. — Severely diabetic patients treated with protamine zinc insulin usually require a supplementary dose of quickly acting insulin before breakfast. In an effort to avoid the inconvenience of two separate injections, increasing numbers of physicians are employing the method of mixing the two forms of insulin in the syringe immediately before injection. In spite of small errors in measurement which inevitably occur, this procedure has given surprisingly good results. It is somewhat compli-

cated, however, and should not be used by unintelligent patients. It must be borne in mind that in market protamine zinc insulin, there is an excess of protamine which, when the two forms are combined, precipitates some of the crystalline insulin. Thus, if one fills the syringe with 10 units of crystalline and 30 units of protamine zinc insulin, the resulting compound will yield something like 4 units of crystalline and 36 units of protamine zinc insulin. In the proportion in which mixtures are generally used, roughly half of the free insulin is converted into the insoluble form. If a proportion yielding one part of free insulin to three parts of insoluble insulin is desired (10 units crystalline and 30 units protamine), then approximately equal parts of the two insulins (20 units crystalline and 20 units protamine) must be introduced into the syringe. Wilder[9] has described this technic in detail.

Colwell, Izzo and Stryker[1] and MacBryde and Roberts[2] have advocated ready-made mixtures which could be marketed as such by commercial firms. It must be recognized that such preparations of intermediate characteristics, like globin insulin, and unlike the extemporaneous mixtures, possess a fixed and inflexible pattern of action, a disadvantage which is avoided by the use of extemporaneous mixtures. It is difficult to see how any one compound could conform to the variable diabetic patterns of different patients. Indeed, experience has shown that in using extemporaneous mixtures, it is often necessary to vary the proportion of the two insulins from time to time, even in the same patient. At any rate, the manufacturers have not yet seen fit to place mixtures on the market. There is, however, much to be said for MacBryde's point of view to the effect that protamine zinc insulin is unnecessarily prolonged in its action and that it might well be replaced by a combination having a more abrupt onset of action and a somewhat shorter duration. This compound, then, could be used as the basis on which variations in treatment could be made by the addition of crystalline insulin, either mixed with the modified protamine zinc insulin in the syringe or injected separately. Further work will be necessary before it can be determined whether such a change should be made.

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A STATISTICAL STUDY OF OBSTETRIC ACTIVITIES IN ILLINOIS HOSPITALS DURING 1943

CHARLES NEWBERGER, S.B., M.D.
CHICAGO

From the statistical viewpoint, obstetric activities of an individual hospital, or of a small group of hospitals, or possibly of all institutions in a city, are frequently reported in medical literature. Often these discussions are limited to one of the many phases of obstetrics, for example, the incidence of toxemia, the frequency of the abdominal delivery, or the maternal mortality. It is uncommon to find an over-all picture of obstetrics on a statewide basis. To make available such information as it relates to the state of Illinois, particularly to the hospitals of the state, is the purpose of this presentation.

This study, for 1943, was made from reports submitted monthly to the Division of Maternal and Child Hygiene of the Illinois State Department of Public Health, by the 238 Illinois hospitals that provide obstetric care. These reports are given careful analysis, and are checked, insofar as they record maternal and neonatal deaths, with the Division of Vital Statistics. The study gives the number of mothers delivered, the manner of delivery, the type of procedure if operative, the use of the bag for induction, the employment of Duhrssen's incision, the occurrence of special hazards such as toxemia, hem-

From the Division of Maternal and Child Hygiene, Illinois Department of Public Health.

Presented before the Section on Obstetrics and Gynecology, 104th Annual Meeting Illinois State Medical Society, Chicago, May 16, 1944.

orrhage, and morbidity, the frequency of abortion and of ectopic gestation, the resort to transfusion, and the incidence of stillbirths, and neonatal and maternal mortality.

Tabulations were made for each hospital, for each of six groups of hospitals classed in accordance with the number of births, for the 64 Chicago hospitals as a unit, for the 174 hospitals in the state outside of Chicago as a group, for each of the 76 counties that have hospitals, and for the state as a whole.

Table 1 groups the hospitals according to the number of births, and shows the number of hospitals and the total births in each group.

TABLE 1
HOSPITALS GROUPED ACCORDING TO NUMBER OF BIRTHS

Hospitals	Number of hospitals	Number of births
With less than 50 births	19	498
With 50 to 149 births	40	3869
With 150 to 349 births	52	11920
With 350 to 499 births	30	12183
With 500 to 999 births	58	42924
With 1000 or more births	39	65255
	238	136649

TABLE 2
STATISTICAL DATA FOR HOSPITALS GROUPED IN ACCORDANCE WITH NUMBER OF BIRTHS

Clinical Activity	Less than 50 births		50-149 births		150-349 births		350-499 births		500-999 births		1000 or more births	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mothers delivered	494		3841		11834		12058		42590		64708	
Spontaneous	424	85.8	3460	90.1	9659	81.6	9614	79.7	31677	74.4	46946	72.6
Operative	70	14.2	381	9.9	2175	18.4	2444	20.3	10913	25.6	17762	27.4
Forceps	43	8.6	299	7.7	1752	14.8	1914	15.9	9084	21.3	14843	23.0
High	7	1.4	34	.9	140	1.2	49	.4	156	.4	75	.1
Mid	9	1.8	36	.9	195	1.6	146	1.2	754	1.7	1083	1.7
Low	27	5.4	229	5.9	1417	12.0	1719	14.3	8174	19.2	13685	21.2
Cesarean	22	4.4	60	1.6	292	2.4	383	3.2	1470	3.5	2076	3.2
Low cervical ...	4	.8	15	.4	92	.8	123	1.0	705	1.7	1129	1.7
Classical	16	3.2	42	1.1	195	1.6	239	2.0	733	1.7	891	1.4
Other	2	.4	3	.1	5		21	.2	32	.1	56	.1
Breech extraction ...	1	.2	9	.2	53	.4	83	.7	188	.4	543	.8
Version & extraction	3	.6	12	.3	75	.6	61	.5	144	.3	258	.4
Destructive	1	.2	1		3		3		27		42	
Bag induction	2		3		20		22		48		89	
Duhrssen's inc.	5		3		5		10		38		47	
Complications												
Morbidity*			13	.3	201	1.7	294	2.4	922	2.2	2284	3.5
Toxemia	9	1.8	38	1.0	199	1.7	227	1.9	994	2.4	2250	3.4
Eclampsia	2	.4	9	.2	47	.4	54	.4	144	.3	157	.2
Preeclampsia	3	.6	15	.4	63	.5	58	.5	363	.9	997	1.5
Other	4	.8	14	.4	89	.8	115	1.0	487	1.2	1096	1.7
Hemorrhage	9	1.8	19	.6	92	.8	199	1.7	491	1.1	1113	1.8
Antepartum	1	.2	6	.2	13	.1	46	.4	130	.3	249	.4
Intrapartum	3	.6	2	.1	18	.2	35	.3	64	.1	170	.3
Postpartum	5	1.0	11	.3	61	.5	118	1.0	297	.7	694	1.1
Transfusion			10	.3	88	.7	95	.8	462	1.1	1664	2.6
Abortions	10		37		310		395		1678		3334	
Ectopics	4		4		35		47		132		252	
Total births	498		3869		11920		12183		42924		65255	
Stillbirths**	10	20.1	88	22.7	268	22.5	265	21.8	880	20.5	1256	19.2
Neonatal deaths**	16	32.1	91	23.5	253	21.2	254	20.8	900	21.0	1376	21.1
Maternal deaths**	4	8.1	9	2.3	39	3.3	32	2.7	94	2.2	107	1.7

*A temperature of 100.4° F. or over occurring on any two of the first ten days postpartum, exclusive of the first twenty-four hours.
**Rate per 1000 births.

TABLE 3
STATISTICAL DATA FOR CHICAGO HOSPITALS, FOR HOSPITALS OUTSIDE OF CHICAGO, AND FOR ALL ILLINOIS HOSPITALS

Clinical Activity	Hospitals in Chicago (64)		Hospitals outside of Chicago (174)		All Illinois hospitals (238)	
	No.	%	No.	%	No.	%
Mothers delivered	64115		71306		135421	
Spontaneous	46370	72.3	55311	77.6	101681	75.1
Operative	17745	27.7	15995	22.4	33740	24.9
Forceps	14706	23.0	13225	18.6	27931	20.7
High	59	.1	425	.6	484	.4
Mid	904	1.4	1314	1.9	2218	1.7
Low	13743	21.5	11486	16.1	25229	18.6
Cesarean section	2214	3.5	2088	3.0	4302	3.2
Low cervical	1367	2.2	697	1.0	2064	1.5
Classical	771	1.2	1327	1.9	2098	1.6
Other	76	.1	64	.1	140	.1
Breech extraction	526	.9	349	.5	875	.7
Version and extraction	240	.4	315	.4	555	.4
Destructive Operations	59	.1	18	.03	77	.1
Bag induction	77		101		178	
Duhrssen's incision	32		85		117	
Complications						
Morbidity*	2123	3.3	1571	2.2	3694	2.7
Toxemia	2247	3.5	1453	2.1	3700	2.7
Eclampsia	145	.2	270	.4	415	.3
Preeclampsia	907	1.4	579	.8	1486	1.1
Other	1195	1.9	604	.9	1799	1.3
Hemorrhage	971	1.5	983	1.4	1954	1.4
Antepartum	226	.4	229	.3	455	.3
Intrapartum	131	.2	171	.2	302	.2
Postpartum	614	.9	583	.9	1197	.9
Transfusions	1714	2.7	602	.9	2316	1.7
Abortions	3367		2377		5744	
Ectopic gestation	228		253		581	
Total Births	64626		72023		136649	
Stillbirths**	1325	20.50	1446	20.08	2771	20.28
Neonatal deaths**	1251	19.35	1662	23.08	2913	21.32
Maternal mortality**	124	1.93	161	2.25	285	2.10

* A temperature of 100.4 F. or over occurring on any two of the first ten days pospartum, exclusive of the first twenty-four hours.
**Rate per 1000 births.

Table 2 presents in detail the clinical activities of hospitals in each birth class.

Among the variations in similar data in these columns, there is noted a higher percentage of operative intervention, a preference for the low cervical Cesarean section as against the classical operation, and a more frequent employment of transfusion, as the number of births in the hospital increases; the hospitals with the smallest number of births have a greater incidence of Cesarean section, and a higher rate of neonatal and maternal mortality. This Cesarean section rate of 4.4 per cent is higher not only with reference to the number of deliveries, but more so in ratio to the total number of operative procedures, being 31.4% of all operations in the smaller hospitals, and 11.7% of all operations in the larger hospitals. The apparent increase in morbidity as the number of births is greater, is misleading, because of failure of many hospitals, particulary the smaller institutions, to report on this item.

Because the number of births in the Chicago hospitals reached 47.3% of the total hospital deliveries, tables were prepared to give the obstetric activities for the Chicago hospitals as a

unit, for the hospitals in the rest of the state as a group, and for the state as a whole. This information is shown in parallel columns in Table 3.

In comparing the reports of the individual hospitals, there is noted a wide range of percentage in identical data. This is shown in Table 4.

TABLE 4

RANGE OF PERCENTAGE IN INDIVIDUAL HOSPITALS

	Average for state	Low %	High %
Spontaneous deliveries ...	75.1	12.3	97.7
Operative deliveries	24.9	2.3	87.7
Cesarean sections	3.2	.38	10.48(1)
Stillbirths*	20.28	4.7	81.1 (2)
Neonatal deaths*	21.32	4.5	74.6 (3)
Maternal mortality*	2.10	.0**	24.4 (4)

* Rates are per 1000 births.

**There was no maternal mortality among 2121 mothers in one hospital; other institutions without maternal loss had 1230, 1094, and 854 deliveries, respectively; one hospital had 1832 deliveries with one maternal death, and another had two deaths among 3729 mothers — giving a rate in each of .5 per 1000 births.

(1) 24 Cesarean sections in 229 mothers.
(2) 3 stillbirths in 37 babies.
(3) 5 neonatal deaths in 67 babies.
(4) 2 maternal deaths in 82 deliveries.

A similar variation is observed in the statistics prepared for the counties. For purposes of illustration, only the data dealing with stillbirths, neonatal deaths and maternal mortality are given in Table 5, which shows not only the wide range, but also that out of 76 counties, 35 had higher than the average stillbirth rate, 47 had higher than the average neonatal death rate, and 33 had higher than the average maternal mortality rate.

The maps of the state in figures 1, 2, and 3, show respectively the stillbirths, neonatal deaths, and maternal mortality, in each county, in the group classes indicated in Table 5. In general it is noted that the north and central counties have lower fetal and maternal losses than the counties in the southern part of the state.

Figure 1
Stillbirth Rate In Hospitals of Each County, Illinois, 1943

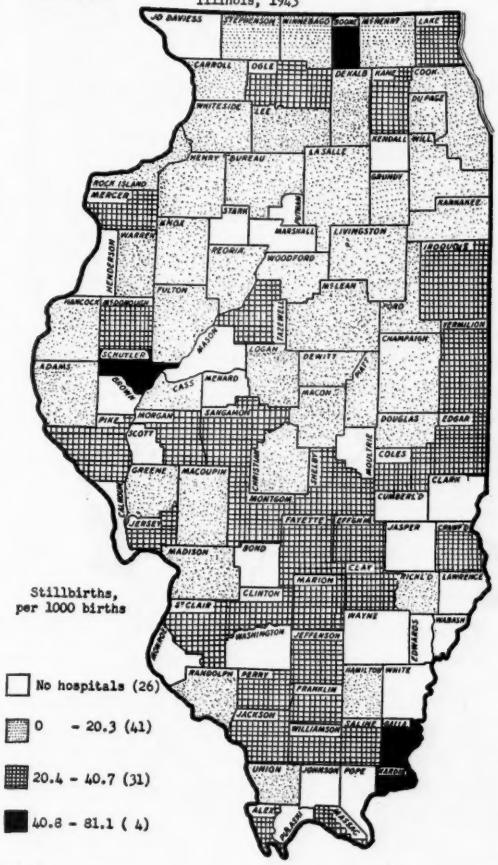


TABLE 5

RANGE, BY COUNTIES, IN RATES OF STILLBIRTHS, NEONATAL AND MATERNAL DEATHS

Stillbirths		Neonatal deaths		Maternal deaths	
Rate per 1000 births	No. of counties	Rate per 1000 births	No. of counties	Rate per 1000 births	No. of counties
.0 — 20.3	41	.0 — 21.3	29	.0* — 2.1	43
20.4 — 40.7	31	21.4 — 42.7	45	2.2 — 4.3	16
40.8 — 81.1(1)	4	42.8 — 66.7(2)	2	4.4 — 8.7	9
				8.8 — 24.4(3)	8

* There was no maternal mortality in one county with 1944 mothers, and in another county with 1302 mothers; one county had one maternal death in 2355 mothers, giving a rate of .4 per 1000 births, and another county had one death in 1644 mothers, with a rate of .6 per 1000 births.

(1) 3 babies in 37 births.
(2) 4 babies in 60 births.
(3) 2 mothers in 82 deliveries.

Figure 2.
Neonatal Death Rate In Hospitals Of Each County
Illinois, 1943

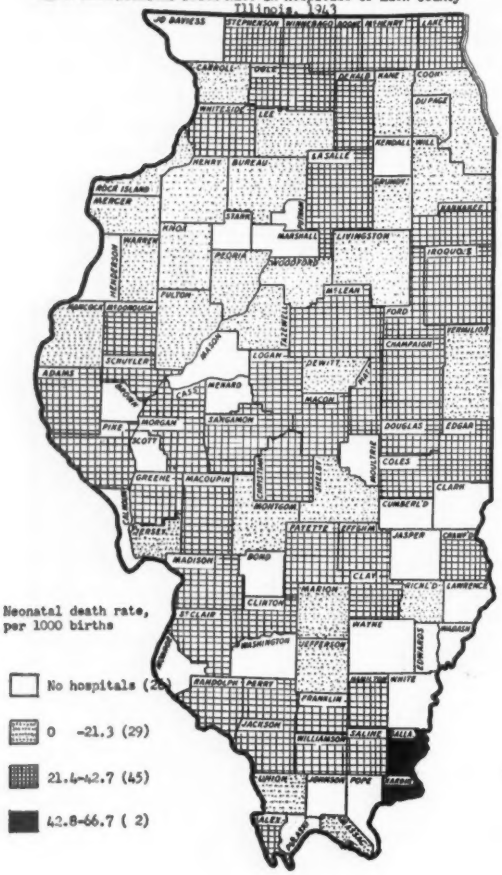
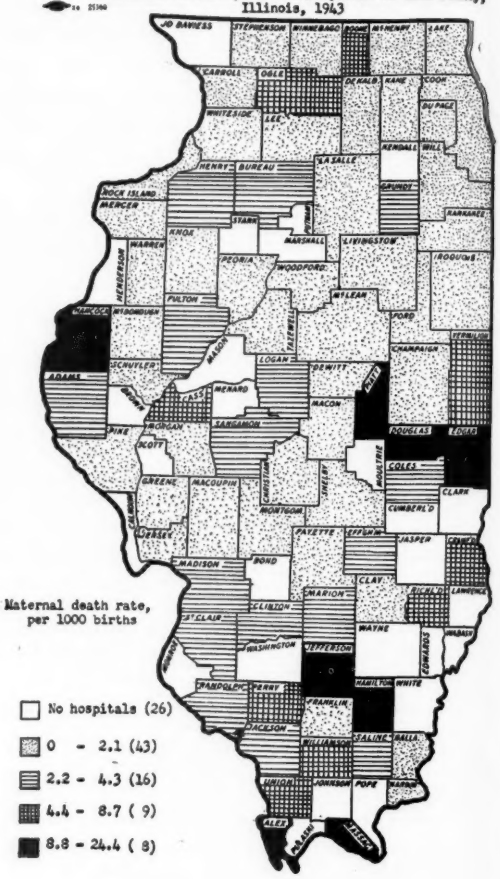


Figure 3
Maternal Mortality Rate in Hospitals of Each County,
Illinois, 1943



Although this study concerned itself primarily with the obstetric activities of the hospitals in the state, it was deemed worthwhile to record pertinent data of the total maternal work done in the state, as shown in Table 6.

This table points to the fact that in Illinois, 87.6% of the 1943 deliveries occurred in hospitals, and that 0.27% of the total births were attended by midwives. It also shows a higher stillbirth and neonatal rate for home deliveries compared with those in hospitals. The smaller maternal death rate in mothers cared for at home is explained by the readiness with which such patients, when presenting complications, are removed to hospitals.

TABLE 6
COMPARATIVE DATA FOR HOSPITAL AND HOME DELIVERIES

	Births		Stillbirths		Neonatal D.		Maternal D.	
				Rate per		Rate per		Rate per
	No.	%	No.	1000	No.	1000	No.	1000
Hospital deliveries	136649	87.6	2771	20.28	2913	21.32	285	2.10
Home deliveries*	19346	12.4	618	31.94	487	25.17	32	1.65
To al for state 155995			3389	21.72	3400	21.79	317	2.03

* Of this number, 414 mothers were delivered by midwives, or 0.27% of the total.

TABLE 7
CAUSES OF MATERNAL DEATHS, AND THEIR FREQUENCY

Cause of death	Hospital		Home		Total for State	
	No.	%	No.	%	No.	%
Toxemia	89	31.2	10	31.3	99	31.2
Hemorrhage	40	14.0	5	15.6	45	14.2
Infection	35	12.3	5	15.6	40	12.6
Other accidents of pregnancy	64	22.5	6	18.8	70	22.1
Diseases of pregnancy	4	1.4			4	1.3
Abortion	35	12.3	2	6.2	37	11.7
Ectopic gestation	12	4.2	3	9.4	15	4.7
Unspecified conditions of pregnancy	6	2.1	1	3.1	7	2.2
	285	100.0	32	100.0	317	100.0

An analysis made of the causes of maternal mortality, and their relative frequency, is presented in Table 7. It is noted that of the three leading single causes of death, toxemia ranks first with 31.2%, hemorrhage is next with 14.2%, and infection is last with 12.6%.

COMMENT

The study of the monthly hospital reports, carried on concurrently with well over 300 personal appraisals of obstetric departments of Illinois hospitals, warrants the expression, if not of concrete conclusions, at least of these well based observations:

1 — Operative deliveries up to the average of nearly 25%, as shown for the state, seems reasonable. It is conceivable that in teaching hospitals, intervention may be resorted to more frequently, but a serious question arises when operative procedures reach 87.7% of all deliveries.

2 — A Cesarean section rate of 3.2% — as shown for the state — is believed to be acceptable. But much can be said against the employment of the abdominal delivery in 10.48% of all mothers.

3 — The increase in the ratio of the number of Cesarean sections to the total of all operative deliveries, from 11.7% in the larger hospitals, to 31.4% in the smaller hospitals, places the staffs of these smaller institutions in an unfavorable and indefensible position.

4 — Criticism may be directed against the smaller hospitals for failure to make available and to employ more frequently the facilities for transfusion.

5 — Considering the average stillbirth rate of 20.28 per 1000, and the average neonatal death rate of 21.32 per 1000, one may justifiably question rates reaching four times the number in stillborn babies, and 3½ times the number in neonatal losses.

6 — Noting records of no maternal deaths in lists of mothers numbering 2121, 1944, 1302, 1230, 1094, and 854; of one death each in 2355, 1832, and 1644 mothers; of only two deaths among 3729 mothers; and of a state maternal mortality average of 2.1 per 1000 mothers, it is shocking to read of rates from 4 to 12 times as high.

7 — In reviewing the causes of maternal mortality, creditable mention may be made of the drop of sepsis from first rank, which it long held, to third place, forming the etiologic factor in 12.6% of the 317 mothers who died. It is noted, however, that toxemia, which is considered the most responsive to adequate supervision of the pregnant patient, led all other factors, and was the immediate cause of death in 31.2%.

These observations point to the recommendation that the material gathered by the Maternal and Child Hygiene Division be given careful study and analysis by the staffs of Illinois hospitals, each of which received in March a threefold summary: of its own obstetric activities, of the statistics for its birth class, and for all the hospitals in the state. It could well be made the topic of discussion at staff conferences, or medical society meeting. The data as prepared by counties can profitably serve the Maternal Welfare Committees of the various County Medical Societies, and of the State Society.

Finally, this survey makes obvious another recommendation. This is a plea for better and more thorough hospital records on the part of physicians, and greater accuracy and complete-

ness in compiling the monthly reports by those charged with this responsibility. Through such means, will future surveys become more instructive and acquire greater scientific value.

DISCUSSION

Dr. Edward L. Cornell, Chicago: This paper, of course, required a great deal of work to get these statistics in readable form, and I want to congratulate him on the study. I find on looking over statistics in my own and other hospitals, that you can make them read what you wish them to. If you take the bare facts without any qualification you come to false conclusions. I can remember a South Side Hospital in Chicago whose statistics on paper looked terrible, and only when I visited the hospital and saw the patients it received did I realize that the hospital was not at fault. This particular institution was a dumping ground for an area bounded by 51st street to 111th street, west to the city limits and beyond. The morbidity and mortality, fetal and maternal, was higher in proportion to the number of deliveries than in hospitals like Chicago Lying-In.

Another factor that impresses me is the increase in the cesarean rate and the operative rate in Chicago. Instead of man handling the patient from below and getting a dead baby, more men are resorting to cesareans. So the rate is going up in institutions.

The third thing that impresses me is that in institutions with obstetricians of recognized ability the cesarean section rate is apt to be higher, for the reason that women who have lost their first baby or have had difficulty go to a recognized obstetrician with their second or third pregnancy, and the contracted pelvis or other complication is recognized.

Another factor that impresses me is that in some of the institutions in this same group, the 1943 statistics came to my attention — I was fortunate enough to have confreres in the different institutions who gave me their figures. Some institutions that do more cesarean sections had a lower maternal and fetal mortality and a lower morbidity rate. This is not a plea for more cesarean sections, but my plea is that you should analyze statistics from the viewpoint of all factors, and not say that this hospital has 10 per cent cesarean sections and the next one only 2 per cent. What is the mortality rate, etc., in comparison of the one with the other. If you do more cesareans but save more babies and mothers, is that gratifying or not gratifying?

The number of transfusions in Chicago I think is high, probably a little higher than necessary. Blood material is easy to obtain here whereas in the south part of the State it is perhaps more difficult. Therefore transfusions are fewer. I think the situation downstate could be remedied by the State establishing centers where blood might be obtained.

The operative incidence is gradually increasing, especially low forceps. This is due probably to the fact that women want analgesia of some type, either oral or caudal anesthesia. Whether this is to be criticized I hesitate to say. It seems to me that a woman is entitled to as much relief of pain as possible when in labor.

Dr. Rudolph W. Holmes, Charlottesville, Va.: As I see it there are two chief factors to be considered in analyzing maternal mortality in hospitals — and neither of them have often been given deserving weight in discussions. The first factor is the type of hospital, does it have a normal communital admissions with fortuitous cases of real pathology, now and then, or is it so peculiarly placed that the clientele is disproportionately afflicted with grave complications of pregnancy and labor: the former will have almost no mortality, while the latter will necessarily have material losses. In times past much publicity was given to the preachment that maternity hospitals alone were the havens of security, and the obstetric services in general hospitals were public menaces. Most maternity hospitals do not have an array of pathologic cases, so it follows the death rates are low. Does anyone believe that the obstetrician in the maternity is peculiarly gifted so he towers above his colleagues in the general hospital — such a thought is rank sophistry.

The second influencing factor is the experience of the attendant. Experience comes from the diversity of the physician's practice, and its size — plus his capacity to assimilate and digest that experience. A small staff with a large obstetric service give maximum opportunity to witness and to perform all the ramifications of maternal care. It is quite otherwise in the frankly open hospital; here, the patients are distributed among numerous attendants and often a large "courtesy staff." I know of hospitals which have more attending obstetricians than there are obstetric beds. In such a service who can really have an extensive practice! Years ago I was taken to one of the largest obstetric hospitals in England: I asked the chief obstetrician how many forceps, versions, craniotomies, and Cesarean sections he personally had annually. He replied, "Very rarely as the house physicians did it all." I never could appreciate his duties.

In large cities, and in the large maternity services of hospitals the very weight of numbers will develop and will demand an orderliness of procedure in the conduct of the seriously compromised patients. It is quite another story when it involves the small hospitals in small cities and towns. We should do our best endeavors to develop an esprit de corps among the physicians in such communities and hospitals that consultations shall be held on all seriously ill parturients, and where operative indications shall be placed: I do not imply that consultations should be held between men of equal calibre, but that the best obstetrically trained man in the community shall be designated as the consultant.

I would congratulate Dr. Newberger on his preparation of this epical and epochal contribution.

Dr. J. P. Greenhill, Chicago: Those of you who have tried to analyze statistics know what a magnificent piece of work Dr. Newberger has done. Last

week in Brooklyn I listened to a paper by Gordon on the analysis of maternal deaths in the Borough of Brooklyn. Dr. Gordon has been analyzing the maternal deaths in Brooklyn for years. From a study of the death certificates in the last few years, he has shown that sepsis has dropped from first to second and even third place, and that hemorrhage is the most important cause of death. According to the statistics he obtained from the Health Department records, hemorrhage was third or fourth, in importance. However, Dr. Gordon obtained the original hospital records of each patient who died, and proved beyond doubt that hemorrhage was the outstanding cause. In cases of infection he proved that, although many patients died with sepsis, the actual cause of death was the blood loss that preceded the infection. If Dr. Newberger could get the actual hospital records he might find a similar condition.

Dr. A. J. Kobak, Chicago: I would like to ask a few questions. In reference to eclampsia having first place among various other causes of death or complications, is there simply a rearrangement of the causes of death or is there actual increase of toxemia over previous years? We know the maternal death rate has been dropping. Therefore, is toxemia actually on the increase or is it rearranging itself in the "line-up" of other causes of maternal deaths?

There was shown a definite difference in the figures pertaining to maternal death rates in Chicago and downstate. Does the latter have the same standards and rules as in Chicago, for example, that a qualified consultant must be seen to indicate that a contemplated operative procedure is valid? Recently, in going over the figures at County Hospital, the major indication for cesarean section has been repeated cesareans. We rarely see disproportion as a factor. That is surprising when you think of the number of cases at County Hospital.

The last question is, has there been any attempt to assay preventable factors? The mortality has been falling to a gratifying degree. It makes no difference how many deaths occur, but how many occur from factors that were preventable? There is nothing more deplorable than women's lives being lost when something could have been done to prevent that. When one refers to the original New York report, with something like 67 per cent of maternal deaths having preventable factors, and the Philadelphia report indicating over 50 per cent, I would like to know to what extent preventable factors played any role in the deaths analyzed by Dr. Newberger.

Dr. Frederick H. Falls, Chicago: I think the mortality shown by Dr. Newberger is a subject for a good deal of congratulation. Men who have been active in trying to reduce this maternal mortality have seen this rate, which was for years 6 and 7 per cent, in a few short years undergo this remarkable change. It is very heartening and inspiring, and makes us feel that while we are getting toward the bottom, the end is not yet. It is from figures thus carefully compiled and selected that we get encouragement to attempt to reduce the mortality to the vanishing point.

Dr. Newberger mentioned transfusions, and the lack of them in smaller hospitals, and I want to repeat what I have said before, that I think there is danger as well as value in transfusions, particularly in toxemia and in ectopic pregnancy. If you fill the vessels of an ectopic with acacia, salt solution and glucose, most of them will recover. If you can get blood that is perfectly matched it is valuable, although you are running some risk of reaction. I do not feel too badly if I have glucose, acacia and salt solution — no matter how serious the patient's condition may be — most of them will get well.

The cesarean rate, 3.2 per cent, is about what it ought to be. I must admit there are two schools of thought on cesareans. One is that there are too many. Another is that there are too few, and many men pride themselves on their conservative attitude and fail to do a cesarean when it should be done. The only way to arrive at a solution is to have men trained in obstetrics as consultants. The fact that a man can do a cesarean and is called in consultation does not mean that he is the one to determine whether a cesarean should be done. So we will have to wait until we have qualified consultants to evaluate cases in which a cesarean should be done, and even if the rate increases, the fetal and maternal mortality will decrease.

Statistics may give an incorrect impression: as shown by the report of some counties with 1000 births and no deaths; that is because such a county sends its seriously ill cases to the hospital in the next county, therefore that county gets the credit for the deaths that occur.

The question of operative deliveries in teaching institutions is a major problem with me. I do not know what to do in my own institution. I have about 1000 deliveries a year. The reason I do not have more is because the State of Illinois thinks it is possible to teach 180 young men with 30 obstetrical beds. That is one thing that is wrong in Illinois. Inadequate facilities for undergraduate and graduate teaching. In my 30 beds, if I am correct in my estimation as to how these 1000 women should be delivered, there will be only a small number operated on. If we operate only on strict indications I have residents leaving the institutions after two or three years who have had inadequate training in operative obstetrics. If they then get a case with fulminating eclampsia they are afraid to operate because they do not know how. So they are conservative, feeling that this will bring less criticism of the way the case is handled. As Dr. Holmes said, you have to have a large number of cases in order to have cases for operation. Then you have to have people competent to judge whether the patient should be operated on. Then you have to have a man who will step aside and let the young men do operations under his guidance. That means we should have a better teaching program and older obstetricians should see

to it that cases are properly used for teaching. When we get these things a good many of these problems will automatically be solved.

Dr. Charles Newberger, Chicago (closing): Dr. Cornell mentioned the fact that he had had a chance to see the records of other Chicago hospitals and noted that where there was an increase in cesarean sections there followed a low mortality rate. But Dr. Cornell also wisely said that you can make statistics read what you want. The Illinois hospital with 10.48 per cent cesareans had a maternal death rate of 17.47 per 1000 births. I am not drawing the inference that the high section rate was responsible for a maternal death rate eight times above that for the state as a whole, but these are the figures.

On the other matter of transfusions, I want to say that the State at the present time is about to initiate plans for plasma for all hospitals outside Chicago and we hope this will be in operation before very long. This will be without expense to the institution except to have donors to replace 500 c.c. of blood.

Dr. Holmes is right, in that it is not fair to charge the hospital with a high mortality rate because of the high number of pathologic cases. At the same time, it is well to recall that in nine instances with the births ranging from 854 to 2355, the maternal loss was 0 to 0.6 per 1000. It is not entirely a matter of luck. It is not lack of pathology but better obstetrics that counts.

Dr. Kobak asked for comparative data on toxemia. We have no figures available. We hope we will be in position as time goes on to determine this. The other question was about the standards of hospitals. There are 174 institutions outside of Chicago. The State has the right to withhold a license unless minimum standards are observed; essentially, it is the spirit of the men who compose the staff that decides whether standards are maintained. As to whether there has been any study made of maternal deaths from the standpoint of preventability, you can see the difficulties that arise in such investigation on a statewide basis. I am hoping the time will come when we can set up a program of that sort. We are losing valuable time from the viewpoint of improvement in practice by failure to establish such studies. It is necessary to get the consent of the Maternal Welfare Committee and of the County Society to affect such a program.

For many years childhood tuberculosis has been confused with first infection type of tuberculosis. While it is true that the course of tuberculosis is strongly modified by the age of first infection, the first attack is generally similar at any age, making due allowance for the type of tissue in which the lesion occurs. The relationship of this and other diseases such as rheumatic fever and infantile paralysis to the growth process is therefore of great pediatric importance and the subject is one for research examination.—Hugh McCulloch, M.D.—Minn. Med., December, 1944.

THE TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA WITH POSITIVE FISTULA SYMPTOMS

M. Tamari, M.D. and L. Hirsch, M.D.
CHICAGO

(Abstract)

Sulfa drugs have been used with very good results in different types of suppurating ear infections, but in some cases they are of no value, either due to small portals of entry for the introduction of locally applied drugs or because cholesteatomatous masses and debris covering the matrix, prevented the medication from reaching the diseased bone.

The continued use of these drugs in such cases have a tendency to develop intracranial complications. In connection with chemo-therapy, we would like to call attention to the treatment of chronic suppurative otitis, complicated by a positive fistula symptom and discuss the treatment as practiced in the Illinois Eye and Ear Infirmary.

A clinical fistula sign does not necessarily require verification at the labyrinthic wall. The perforation may be microscopic in size. The reverse is also true; that is, a large fistula in the labyrinthic wall may not produce a clinical fistula sign. Once the diagnosis of a positive fistula sign is made in the presence of a chronic suppurative otitis, the indication for a radical operation is given. As long as there are no intracranial complications present, the only relative indication for surgery is in relation to the time; when it should be performed. A minimum of two to three weeks hospitalization is recommended. Absolute bed rest and attention to the physical and mental state of the individual is a prime requisite for eventual surgery. Manipulations of any kind in the middle ear are avoided. For three days prior to surgery the patient is placed on a regime of sulfadiazine.

A radical mastoidectomy is performed in all of these cases. The fistula is not looked for, as this procedure may spread the infection toward the labyrinthic lumen. Special attention is given to the plastic flap. We think the large, one-flap plastic, placed below the horizontal

From Illinois Eye and Ear Infirmary — University of Illinois.

Presented before the Section on Eye, Ear, Nose and Throat, 104th annual meeting, Illinois State Medical Society, Chicago, May 17, 1944.

canal is best for such an operative procedure. The wound is cleansed and one gram of sulfanilamide powder is placed in the cavity. An iodoform pack is loosely inserted into the external canal and the mastoid cavity packed from behind. If the sigmoid sinus and the dura have not been exposed, the post auricular wound is sutured and permitted to heal by first intention.

Full doses of sulfadiazine are administered for the next two postoperative days and gradually decreased until the fifth or sixth day, when it is discontinued.

Postoperative care is the same as for any other radical cavity.

DISCUSSION

Dr. Alfred Lewy, Chicago: I think I can speak from considerable experience in surgery of chronic suppurative otitis media which show fistula symptom. I want to congratulate the authors on their very complete elucidation of the pathology of the labyrinthine fistula. I am limiting myself to a plan of treatment I have used for a long time. I now have 17 cases, most of which date back before the use of the sulfonamides so the results are fairly attributable to the method used. It was recommended by Alexander many years ago. Any patient with chronic suppurative otitis media with fistula symptom but with no intracranial symptoms, was put to absolute bed rest for six to eight weeks. I recall two cases in which, because of the excellent condition of the patients and the disappearance of vertigo, I was persuaded to operate at the end of three weeks, and both patients had stormy convalescences. So I went back to the procedure of bed rest, minimum local treatment, and no company for the patient. That is one of the most difficult things to accomplish. They were then subjected to radical mastoid operation.

I cannot agree with Dr. Nash on the modified operation. Most of the patients had poor hearing, so the question did not come up, but I believe in the face of a fistula in the canal we must be sure we are getting absolute drainage. I have 17 cases with 17 recoveries. A number of the patients came out of the hospital with some hearing and eventually lost it. It was a degenerative process of the nerve that took place. I believe in spite of the defensive measures we have in the sulfonamides, and which I use now pre-operatively in all cases I have any concern about, I do not think we should depend on them. The answer is radical operation.

When I have an unusually large cavity I try to cut a flap to cover it. I have never seen any one flap with any advantage over any other flap. I believe my results are as good as anybody has had.

Dr. L. Hirsch, Chicago (closing): I wish to thank Dr. Nash and Dr. Lewy for their excellent discussions. As far as the hearing is concerned, it has been our experience that it is very poor in these cases of circumscribed labyrinthitis. I believe that the hearing factor is secondary to adequate drainage and prevention of further involvement of the inner ear and since the horizontal canal is in such close proximity to the posterior canal wall it is my opinion that the entire bridge be removed and a large uninterrupted cavity created.

GAS GANGRENE TREATED BY PENICILLIN

BY

W. STUART WOOD, M.D., SAM HOLTZMAN, M.D.,
A. F. GOODYEAR, M.D., AND CINEY RICH, M.D.

DECATUR

The treatment of gas gangrene by serum and x-ray therapy yields good results in many cases. There are some cases, however, where they fail in the treatment. Knight and associates reported recently on a case of gas gangrene successfully treated with penicillin.

In the following case penicillin was also used by us.

D. F., age 39, male, was injured while working in a corn elevator. The accident occurred on December 17, 1943. It was due to a power cable loop which caught around the right ankle of the patient. The patient was immediately admitted to St. Mary's Hospital and taken directly to the operating room. His general condition was good with very little shock present. Under ethylene anaesthesia, the injured foot was explored. There was a compound fracture of both bones of the right leg about 2 inches above the ankle joint. The posterior tibial artery, vein, nerve and tendon were severed. The wound was thoroughly washed with soap and water, debrided, and the severed ends of the tendon sutured. Sulfathiazole was placed in the wound and was covered by a vaseline gauze pack. The fractured bones were reduced and a bivalved plaster cast applied. Prophylactic doses of tetanus antitoxin and gas gangrene antitoxin were administered before the patient left the operating room. Sulfathiazole was started by mouth.

From 12-17-43 to 12-22-43, the patient had a low grade temperature up to 100° F. On 12-23-43, the ends of the toes showed signs of dry gangrene which was limited to the distal phalanges. Patient began to complain of pain in the region of the right ankle. The next day the temperature rose to 104.2° F. On 12-25-43, the front half of the cast was cut away revealing a discharge of foul smelling necrotic material from wound. Amputation through the upper ⅓ of the leg was done the next day. The tissues on the lateral aspect of the leg were edematous. Crepitation was detected extending up the thigh. X-Ray therapy was started under the guidance of John Madden M.D. 20,000 units of gas gangrene antitoxin were administered. Pa-

Figure 1 showing original fracture 2 inches above the right ankle joint.

tient had repeated chills. On 12-29-43, the temperature was 106° F. and x-ray showed gas in the thigh 6 inches above the knee joint (see Figure 1).

A pulmonary embolus developed in the left chest and required intranasal oxygen for relief. The patient's temperature remained elevated and septic in character.

On 1-7-44, lateral incisions of the lower ½ of the thigh were made extending down to the bone. The stump was disarticulated at the knee. The patient's condition remained critical.

Penicillin was obtained from Dr. Chester Keefer of Boston, Mass. and was started on 1-14-44. The following units were given intravenously:

1-14-44 55,000 units
1-15-44 120,000 units
1-16-44 120,000 units
1-18-44 90,000 units
1-19-44 110,000 units

The patient's condition gradually improved and x-rays taken on 1-27-44 showed no visible gas in the thigh, but osteomyelitis had developed in the lower ½ of the femur. There was a foul discharge from the stump. Amputation through the upper ⅓ of the femur was done on 2-3-44. Loose approximitation of muscle and skin was done. The wound was packed with vaseline gauze. Penicillin 40cc (200U per c.c.) was used locally through a tube placed in the stump until 2-10-44. It was started again intravenously on 2-4-44 until 2-10-44 giving 60,000 units daily.

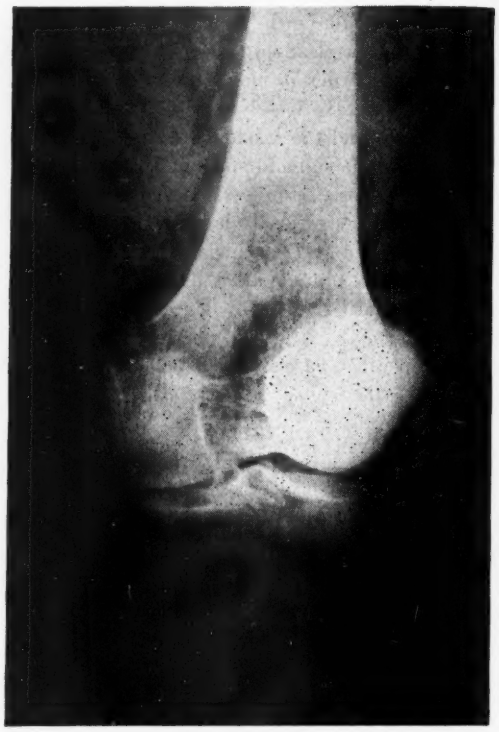


Figure 2 showing gas extending about 6 inches above the knee joint.

Patient was given about 10 blood transfusions of 500 cc of citrated blood through the course of his illness. The following blood counts were made:

Date	Hemoglobin	Red Blood Count	White Blood Count
12-17-43	80%	4,800,000	12,400
12-27-43	50%	2,800,000	14,000
12-29-43	63%	4,000,000	20,800
1-1-44	50%	3,400,000	22,400
1-7-44	72%	4,250,000	15,000
1-9-44	53%	2,480,000	8,000
2-7-44	47%	2,690,000	7,000

The patient's condition gradually improved. The wound of the stump has almost entirely healed. The patient at present is up and about with crutches.

SUMMARY

We are reporting a case of gas gangrene of right leg which developed in spite of a prophylactic dose of gas gangrene antitoxin. X-ray, gas gangrene antitoxin and repeated blood transfusions did not seem to have any affect on the course of the disease. It is our opinion that penicillin was a great help to the patient in overcoming the disease. About 2 million

units of penicillin were used. It is of interest in this case that penicillin didn't affect the osteomyelitis present.

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BACTERIOLOGICAL AIDS IN THE TREATMENT OF ACUTE GONORRHEA

MAJ. ISADORE PILOT, M.C.

Sulfonamides and penicillin have become potent remedies for acute gonorrhea, and have succeeded in curing patients rapidly with a marked reduction of disability and the carrier state. The present study was made to furnish practical cultural methods that could be employed in most laboratories to assist the clinician in the rapid cure of acute Neisserian infections. This work was carried out in collaboration with Captain Bernard Kaplan, M.C., of the venereal disease section of Fort Sheridan, Illinois, who is reporting in detail the clinical findings in another communication.

To detect sulfonamide resistant strains Goodale and his collaborators[1] employed chocolate agar containing .5 mg% sulfathiazole. We used 5 mg% to approach the average level of sulfathiazole in the blood of patients. In brain heart infusion this higher sulfathiazole concentration yielded excellent correlation with the clinical results.

After smears for Gram stain were made from the urethral discharge, the purulent secretion was collected on cotton swabs which were placed into tubes containing 1 c.c. of 1% dextrose broth. The material was sent to the laboratory and streaked immediately on chocolate agar plates, as prepared in the following manner.

To brain-heart infusion (Difco), readily available in most laboratories, agar in 1.75% proportion was added. Packed blood cells from citrated blood bottles from which the plasma had been removed were added one part to twenty of media. The mixture was heated slowly to 80° C. until it turned chocolate in color. Another flask of the same contents was prepared with the addition of 50 mg. sulfathiazole per liter, giving a concentration of 5 mg. per cent per 100 c.c. Poured plates were made from each flask. One plain chocolate plate and one containing the sulfathiazole were streaked routinely with each swab and both incubated in CO_2 jars for 48 hours. The growths were examined for Neisseria colonies with the aid of the oxidase reaction by the addition of 1% of para-aminodimethyl analine monohydrochloride. The typical round, biconvex, grayish white colonies of N. gonorrheae on this medium often attained a size of 3 to 4 mm. in diameter and reacted typically with the dye by turning pink, then black in color. Smears were made of the typical and positive-reacting colonies and stained by Gram stain for confirmation. On this medium the identification of N. gonorrheae was comparatively simple, and the results agreed with the smears in ninety-four per cent of the cases. Sulfa-sensitive Neisseria failed to grow on the plates with 5 mg. per cent sulfathiazole, whereas sulfa-resistant strains appeared in variable numbers. Depending on source of material from white or colored patients, the daily number of sulfa-resistant strains varied from 5% to 30%, with an average of about 15%. Most of the resistant strains were found in white patients and only occurred rarely in the colored. This finding correlates well with the experience of many who have recognized the great frequency of resistant cases of gonorrhea in the white, and the ready response in the colored to therapy with the sulfonamides.

According to Captain Kaplan, 96% of the patients with sulfa-resistant strains did not respond to the routine therapeutic doses of sulfathiazole and were referred to the hospital for penicillin therapy. Only 3% of the patients harboring the sulfa-sensitive strains required hospital care, usually for additional procedures to clear the infection.

In later work sulfa-resistant strains were placed on chocolate plates containing 0.5 units of penicillin per c.c. of media. To date all such strains failed to grow on these plates. Sensitivity to penicillin was striking, as many failed to grow on plates containing 0.1 unit per c.c. and gave very sparse growth on plates with 0.01 unit per c.c. This phase of the work is being continued, as it is reasonable to assume that with extensive penicillin therapy, strains resistant to penicillin will appear.

From the Sixth Service Command Laboratory, Fort Sheridan, Illinois.

Over 2500 cultures have been made employing the chocolate plate made with brain-heart-infusion agar, with and without sulfathiazole. The sulfa-resistant cases as reported by the laboratory responded well to intramuscular injections of 50,000 units, in divided doses of 10,000 every three hours. Occasionally 100,000 units were necessary to complete the cure.

The results of this bacteriologic study suggest a simple routine that should reduce the disability from acute gonorrhea. As long as penicillin is not available for routine use, sulfathiazole may be administered to all cases of gonorrhea until the 48-hour report of the sulfathiazole plate is received. If the strain is sulfa-resistant, sulfathiazole can be discontinued, and penicillin treatment instituted immediately. Strains resistant to sulfathiazole were usually resistant to the same concentrations of sulfadiazine, a finding corroborated by the clinical failure of this and other sulfonamides to benefit the cases resistant to treatment by sulfathiazole.

CONCLUSIONS

1. Cultures from cases of acute gonorrhea made on chocolate plates of brain-heart-infusion agar yielded excellent results. Similar plates containing 5 mg. per cent sulfathiazole quickly identified the sulfathiazole resistant strains of Neisseria gonorrheae.

2. In 48 hours cases of acute gonorrhea resistant to sulfathiazole may be detected by this method and can be treated favorably by penicillin injections.

REFERENCE

1. Goodale, Walter T., Gould, R. Gordon, Schwab, Louis, Winter, Virginia G: Laboratory Identification of Sulfonamide Resistant Gonococcic Infections: Jour. A.M.A., 1943, CXXIII, 547.

Hospitals must recognize that a significant number of tuberculosis cases are admitted among their patients, first, because frequently the diagnosis is made only after a stay in the hospital, and more often because tuberculosis is not recognized and remains undiagnosed among their patients, unless special measures are instituted for its discovery. Reliable studies have shown as much as 2 per cent of admissions to general hospitals may have unrecognized tuberculosis. Hence hospitals should insist at least that every patient with respiratory infection be considered potentially tuberculous until proven otherwise and the use of the proper contagion technic should be insisted upon in their nursing care.—M. Pollak, M.D.—The Am. Jour. of Nursing, December 1944.

ACUTE OSTEOMYELITIS TREATED WITH PENICILLIN

CECIL M. JACK, M.D., F.A.C.P.
DECATUR

Patient, R. T. S., 52 years, was first seen by me on February 11, 1944, complaining of pain in the great right toe, instep of foot, and pain that extended up the right leg with soreness over the middle of the thigh.

For the past year, at intervals, he has had pain in his leg and toe but continued to work. The pain was not localized in any particular place. There was an elevation of temperature. The patient was given codeine for relief.

Figure 1. — A.P. and lateral roentgenograms of region of right femur show evidence of a periostitis and osteomyelitis involving the mid-third of the femur. Further roentgenograms will be advisable after an appropriate interval.

On February 27th the patient was admitted to St. Mary's Hospital. There was no localization of pain which extended from an area of the upper third of the thigh down the dorsal surface of the thigh, leg, and into the foot. His temperature was up to 103. Under sulfathiazole therapy the temperature dropped to normal and there seemed a general improvement in his condition.

On March 6th an elevation of temperature reoccurred and on March 10th he had a severe chill, followed by a temperature of 105. The blood count was: red cells 5,200,000; white count 25,000; Hemaglobin 91%; Polys 88%; Lymphs 12%; Blood pressure 148/80; Kahn negative; urine normal. On the following day he again had a severe chill and high temperature. A tumefaction could now be felt over the middle third of the thigh. An X-ray film showed evidence of periostitis and osteomyelitis involving this portion of the femur. On March 12th an incision was made over the middle of the thigh and much free pus was evacuated. An opening in the bone was made and curetted and the area

Read before the Section on Medicine, Illinois State Medical Society, Chicago, May 16, 1944.

packed with vaseline gauze. The pus proved to be a pure staphylococcus. The temperature then dropped; however, he continued to have an evening elevation of temperature to 101.

On March 28th he was having chills and diaphoresis. He became delirious and very toxic. In his delirium he sustained a fracture at the site of operation and traction had to be put on his leg.

On March 29th 85,000 units of penicillin were given intravenously, followed every three hours by 15,000 units, except at night when it was given intramuscularly until 500,000 units were given. On April 3rd penicillin was discontinued because of lack of material but recontinued on April 9th, when another 500,000 units were given as before. From

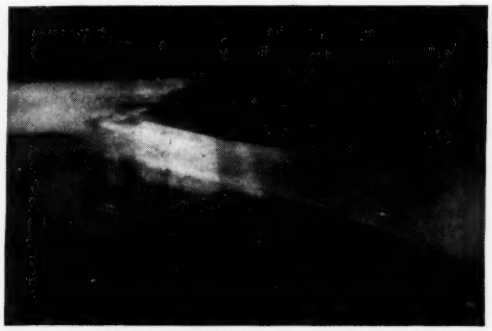

Figure 2. — Reexamination of region of right femur shows evidence of a diagonal fracture in the mid-third which has the appearance of being a combination of pathological and traumatic type.

the 13th the temperature stayed normal without medication. He is now convalescing nicely.

SUMMARY

A case of staphlococcus osteomyelitis of the femur is presented in which sulfonamide treatment had failed and penicillin treatment was effective.

USE OF SACCHARIN FOR SWEETENING

Sugar rationing and new emphasis on weight reduction have doubtless increased the use of saccharin for sweetening purposes. Renewed interest in the possible harmful effect of this substance is an apparent corollary. Earlier investigations of saccharin, however, have failed to reveal dangerous side-actions except from extremely large doses. Likewise the evidence does not reveal any reason why saccharin cannot be used continuously in average sweetening doses for an indefinite period. Many patients have taken saccharin for years without harmful effect.—Wilcox, R. W.: The Therapeutics of Benzosulphinide, M. Rec. 98: 595 (Oct. 9) 1920.

FIND EARLY PROTECTION AGAINST WHOOPING COUGH IS PRACTICABLE

Contrary To Popular Belief, Investigators Find, Infants Under Three Months Of Age Can Develop An Active Immunity

Contrary to popular belief that young infants do not possess the ability to develop active immunity, early protection against whooping cough is practicable, Wallace Sako, M.D., W. L. Treuting, M.D., New Orleans, and Surgeon (R) David B. Witt and Surgeon (R) Samuel J. Nichamin, U. S. Public Health Service, report in *The Journal of the American Medical Association* for February 17.

Their paper reports a study conducted over a period of twenty-seven months during which 3,793 infants were inoculated with alum precipitated Hemophilus pertussis (whooping cough) vaccine. This is a type of vaccine in which alum is used to concentrate the immunizing factors in the vaccine. All of the babies were under 3 months of age, the vast majority under 2 months of age, at the time they received their initial inoculation.

"The fact that 75 per cent of these very young infants exhibited antibody response as measured by the . . . tests used," they say, "is evidence of the value of immunization early in infancy. This is contrary to the popular belief that young infants are unable to elaborate antibodies following active immunization, and the question of early immunization against pertussis should be reopened for consideration by the profession.

"While it was not intended to conduct a well controlled study of the incidence of the disease following immunization, some attempt was made to follow the infants subsequent to immunization. The incidence in those followed who had known exposure, familial or casual, was compared to that in a similar group of non-immunized urban clinic patients. The results of these observations, though small in number, further suggest that early protection against whooping cough is practicable."

The importance of the findings from this study is emphasized by the investigators in the introduction of their report. They say:

"According to the recent mortality records the majority of deaths from pertussis occur in in-

fants. Between 1938 and 1940 inclusive almost 67 per cent of the 10,730 deaths from whooping cough reported in the United States occurred during the first year of life and 47 per cent of these deaths were in infants under 7 months of age. The exceptionally high mortality which pertussis exacts in the first half year of life calls for thorough investigation of the possibility of increasing the resistance of young infants to the disease by immunizing them shortly after birth. This procedure has been objected to chiefly because of the belief that young infants do not possess the ability to develop active immunity. No extensive study has been carried out, however, to establish the earliest age at which immunity to pertussis can be acquired. . . ."

The second half year of life, about seven months, they point out, has generally been accepted as the optimum age for whooping cough immunization, but unfortunately half of the pertussis mortality has materialized before this age is reached.

The study they made was undertaken primarily to evaluate the incidence and severity of reactions following inoculations of the alum precipitated vaccine and to investigate the young infants' capacity to develop antibody response following immunization. Data were collected which shows that young infants tolerated the inoculations extremely well. Local reactions occurred much more frequently following the second and third injections than following the first.

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PENICILLIN AIDS CLOSURE OF BEDSORES

Successful closure of bedsores was carried out with the aid of penicillin administered by injection and locally, Lieutenant Colonel John D. Lamon Jr., and Captain Eben Alexander Jr., Medical Corps, Army of the United States, report in the February 17 issue of *The Journal of the American Medical Association.* The wounds were closed with sutures of cotton.

They say that much has been published concerning the care and healing of bedsores in recent years, but, as far as they can determine, no reports of the successful closure of these sores have so far appeared in the literature.

The case they describe was that of a soldier with three bedsores on his back, all of them infected. To speed the healing of the sores so that a necessary operation could be done on his spine near one of them, penicillin was injected into a muscle for twenty-four hours. Then the sores were carefully excised, penicillin injected into the tissues around each wound and they were closed with sutures. Ten days later the sutures were removed from the wounds which remained clean and free of infection. The operation on the spine was done three weeks after closure of the bedsores.

White persons exposed to sputum-positive tuberculosis cases in a household develop tuberculosis at a rate slightly below 1 per cent per year. Negro associates have an attack rate more than twice as high. Associates of cases not known to be sputum-positive have a substantially lower risk.—Rockefeller Found., Int. Health Div., An. Rep. 1943.

Down through the centuries the common law has recognized the maintenance of the common health as one of the great tasks of society. Wendell Berge, Assistant Attorney-General, U. S. Pub. Health Reports, January 5, 1945.

Physical Medicine Abstracts

John S. Coulter, M.D.

POLIOMYELITIS

Charles Varga, M.D., New York
In ARCHIVES OF PEDIATRICS, 61;12;636
December, 1944

Several important developments which aid in the comprehension of this disease entity are presented.

1. Certain sensory manifestations in individuals suffering from disease are explained on an anatomical basis inasmuch as sensory ganglia show involvement.

2. Involvement of the entire nervous system seen at autopsy indicates that the disease is generally a polioencephalomyelitis.

3. Pathologic changes appear in the internuncial neurons and degeneration of the synaptic associations on the surface of the anterior horn cells in many cases; thus muscle spasm may have a neurogenic basis.

4. Recovery of muscles which occurs in many cases is explained on the basis of partial degenerative changes from which neurons recover rather than on the basis of disappearance of edema.

5. Atrophy, fibrillation and changes in chemical and electrical excitability are the fundamental features of degeneration and denervation of skeletal muscle.

6. Secondary changes in muscles following immobility and disuse seem to be more severe than those following overactivity.

7. Periodic electrical stimulation of denervated muscle can decrease atrophy.

8. When the strength of voluntary contractions of muscles increase through treatment, spasticity decreases.

9. The upper portion of the alimentary tract seems to be the portal of entry of the obligate neural virus.

10. The incubation period averages 12 days; the infectious period lasts from four days before to five days after the onset of symptoms.

11. The agent escapes by way of stools and secretions of the upper respiratory tract.

12. Flies may be vectors; the common house fly is not generally a vector.

13. The mode of spread is possibly by contact or contamination of foods.

14. The incidence of bulbar and bulbospinal poliomyelitis is significantly higher in those patients who had had tonsils and adenoids removed in early life.

15. The problems of immunity are not well understood.

16. Pregnancy complicated by poliomyelitis does not generally result in an infected fetus.

17. Certain precautions must be taken in cases associated with respiratory complications.

18. The use of prostigmine has been advocated on an anatomico-physiologic basis.

19. The efficacy of serum therapy is debatable.

20. An outline of therapy is presented.

TREATMENT OF FRACTURES IN RELATION TO FUNCTIONAL RESULT

Edward Harlan Wilson, M.D.
In THE OHIO STATE MEDICAL JOURNAL,
41;1;38, January, 1945

Modern fracture treatment is generally considered to have begun when the use of the roentgen ray, in connection with the treatment and diagnosis of fractures, became general. As the general use of X-ray did not begin until about 1905, only a brief period of time elapsed before World War I occurred, with its mass demands

for treatment of every conceivable type of fracture injury. Since fracture treatment had developed on an individual basis, the War served to simplify and standardize the individualistic methods which had been in use.

Finally, a word should be said about rehabilitation of the individual once the fracture has become healed. Physiotherapy is a very useful measure in the transitional stage following nonuse. Beginning movements are painful due to the positional contracture of muscles and to the fibrosis of soft tissues from injury to them at the time of fracture.

The essence of physiotherapy is to teach the patient to move the limb through a gradually increasing range of painless motion. If motion is begun gently and does not impinge on painful limits, the patient will rapidly gain confidence, increase his range, and become quite cooperative. If he is told simply to go out and begin moving his limb he will use it in an ungoverned manner which will cause sharp reaction of pain and muscle tightening. This is quickly converted into an exaggerated idea of guarding his limb from all motion.

Once physiotherapy has brought about a fair range of motion, exercises against resistance should be instituted to increase the power of the muscles. Once this stage has been attained, physiotherapy alone will not suffice and must be either accompanied by or supplanted by more active forms of activity. In the case of workmen it is especially important that employers take them back and furnish light, restricted work which will further aid the individuals in rapid restoration of ability to perform full duty.

HEAT IN SURGICAL AND ORTHOPEDIC CONDITIONS

Frank R. Ober, M.D., Boston

IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 126;12;769
November 18, 1944

There are some dangers in the use of local heat. Inflammation and congestion may be increased, and severe burns are not uncommon. The physician may be sued if a patient is burned when heat has been applied by the physician or by an attendant carrying out the physician's orders.

There are also dangers in the use of general heat. Thermal cabinets or vapor baths should not be prescribed without safeguards: The patient must be physically able to stand this sort of heat. The temperature should not be beyond the danger point, and the heat should be used only by those who have had experience in its use. Above all, trained attendants must be present at all times.

The objects of heat are to relieve pain, swelling and spasm. It stimulates the circulation, thus permitting the waste products of inflammation to be carried off into the system. Heat should be considered an adjunct to rest, massage and active exercise. It alone does not restore physiologic use of a joint or muscle.

The use of heat is indicated in contusions, strains, sprains, dislocations, fractures, synovitis (except tuberculosis), bursitis, tenosynovitis, back ache, joint stiffness, arthritis, and in infantile paralysis and other conditions.

THE CARE OF SOLDIERS' FEET

Captain Paul A. Pemberton,
Medical Corps, Army of the United States

In THE BULLETIN OF THE U. S. ARMY MEDICAL DEPARTMENT, 84;112
January, 1945

The most common condition found is faulty foot posture, usually manifested by pronation of the foot. This is recognized by an outward rotation of the calcaneus with dropping of the inner border of the foot, thus throwing the body weight on the medial side of the foot and resulting in symptoms of strain of the longitudinal arch. The condition is due to relative weakness of the posterior tibialis muscle. There is sometimes an accessory navicular or prominence on the medial border of the navicular with resultant poor attachment of the tibialis posterior. The strain on the medial side of the foot may cause lowering of the longitudinal arch, resulting in one of the several types of flatfoot. Examination usually shows, in addition to pronation of the heel, tenderness beneath the astragaloscaphoid joint, where the patient localizes the pain. There is no swelling and no limitation of motion. Forcing pronation of the forefoot may cause pain. The diagnosis is strain due to faulty foot posture and treatment is directed toward correction of the pronation. This includes overcoming the excessive lengthening and weakness of the tibialis posterior. Mild

cases can be treated satisfactorily with a medial wedge under the heel of the shoe, 3/16 inch thick along the inner border and tapering off over halfway across the heel. The heel of the foot must fit snugly into the shoe.

In more severe cases the inner border of the heel is lifted by an arch support in addition to the wedge. A firm flexible support is used and the high point of the support should come under the sustentaculum tali and lift it up. This must be fitted carefully as there is a tendency to get the high point of the arch too far forward, usually under the navicular. This throws all the weight on the arch support and does not correct the pronation.

In the use of arch supports, the point of highest elevation of the longitudinal support should vary according to the condition for which the appliance is being fitted.

Acute sprain is sometimes associated with the chronic strain of poor foot posture, usually within the first two weeks of training or after a long march. In addition to the signs described there is swelling through the mid-tarsal region. Ecchymosis does not occur. This foot will require rest from weight bearing if symptoms are severe. Taping the foot in slight inversion, with a fitted piece of felt under the longitudinal arch, will permit a limited amount of walking.

RECENT ADVANCES IN THE TREATMENT OF PERIPHERAL VASCULAR DISEASES

Gordon E. Jones, M.D., Seattle, Washington

In WESTERN JOURNAL OF SURGERY OBSTETRICS & GYNECOLOGY, 52;12;497 December, 1944

Physical Measures. Successful efforts to increase peripheral blood flow by physical measures have been limited to the expedient of intermittent venous occlusion. This simple mechanical phenomenon can be achieved by means of Buerger's passive vascular exercises, a Burdick intermittent venous occlusion apparatus, or by an ordinary blood pressure cuff and an attendant taught to operate it properly. The purpose of any of these methods would be to bring about an intermittent and rhythmic venous distension with alternate periods for emptying the vascular bed. This therapeutic measure is based on sound experimental data and, more important, has been found to work repeatedly in actual clinical trial. The conclusions of Friedland and Wilkins, based on experimental work which failed to demonstrate an increase in blood flow during venous occlusion, are not necessarily applicable to the effects of intermittent venous occlusion on peripheral blood flow. Their findings are at variance with the work of other investigators.

Refrigeration Anesthesia. Refrigeration anesthesia for amputation has been unreservedly advocated by Allen and others. The technic, as described by several authors is essentially the same in most details. Proponents of the method state that this type of anesthesia lowers the mortality, reduces shock, and makes surgery possible in some cases that might otherwise be hopeless. They all agree that one disadvantage is a delayed healing time.

The refrigeration technic, when properly performed with utmost attention to detail, gives satisfactory anesthesia for almost any type of amputation. The method, however, is time consuming and is cumbersome and messy. Strict aseptic technic is difficult to maintain. The principle of using a tourniquet proximal to the site of amputation in a patient with poor peripheral circulation is a poor one. Crossman's mortality rate of 15.5 per cent in 45 patients anesthetized with this technic is not impressive. The method will be attractive to those who have had anesthesia difficulties but it does not appeal to those who have performed amputations simply and safely under a very low unilateral spinal anesthesia such as can be obtained with as little as 50 mg. of novocain.

Refrigeration anesthesia is a valuable adjunct, however, in certain types of cases. Cooling has the great advantage of arresting the metabolism of both tissue and bacteria, and can therefore be used to "freeze" a septic or gangrenous process while a very ill patient such as a diabetic in acidosis can be prepared for surgery. Crossman reports the case of a poor risk patient with a popliteal embolus in whom the extremity was refrigerated for 16 days before gangrene developed. The method is also of value in the handling of a mangled extremity when the patient needs to be treated for shock.

REFRIGERATION IN CLINICAL SURGERY

Alfred Large, M.D., and Peter Heinbecker, M.D.,
St. Louis, Mo.

In ANNALS OF SURGERY, 120;5;714
November, 1944

Refrigeration of an extremity abolishes pain and lessens the blood and lymph flow. When such refrigeration is followed by, and combined with, the application of a tight tourniquet, absorption of toxic products from an infected gangrenous extremity is, for all practical purposes, eliminated.

Because refrigeration tends to delay wound healing and decreases the power of resistance of tissues to bacterial invasion, the prolonged cooling of tissues to be preserved is not advocated. It is recommended that necessary amputations be carried out above the level of cooling.

Because a patient's general condition can be improved so greatly, during the combined use of cold and the tourniquet, by ordinary restorative measures, it is unnecessary to avoid the use of inhalation or spinal anesthesia for amputation.

Six illustrative cases cared for in accordance with the above principles are reported.

HAZARDS OF HYPERTHERM TREATMENT

In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 127;2;125
January 13, 1945

Wallace and Bushby investigated changes occurring in patients undergoing hypertherm treatment to ascertain whether chemotherapy increases the risks and to discover prophylactic or therapeutic means of eliminating or minimizing the danger inherent in the treatment. They report clinical observations on 254 cases undergoing hypertherm treatment at 106.6 F. for eight hours. Of these, 37 were the subject of a detailed clinical, hematologic and biochemical investigation. The most constant and prominent features were the development of anoxia and of bilirubinemia progressing to definite clinical jaundice in 37 cases. Hippuric acid tests for liver function showed a considerable reduction in this function. Patients with jaundice should be treated as if they had hepatitis and should be kept warm in bed for at least three days or until the jaundice clears. Continuous oxygen and carbon dioxide therapy lessens, though it does not abolish, the anoxia. It appears to prevent circulatory collapse. Vomiting was less frequent after its introduction. Circulatory collapse is a failure of the vasomotor and respiratory centers and is not due to a reduction in the volume of the circulating blood or to myocardial failure. The use of morphine is contraindicated. Hypertherm treatment causes a transient polymorphonuclear leukocytosis and a transient hemodilution. There is a small transient rise in nonprotein nitrogen and a tendency for plasma chlorides and urinary chlorides to fall. The treatment has considerable dangers. The duration must be decided by the medical officer observing each case, but the following are suggested as indications for terminating treatment immediately: (1) fall of systolic blood pressure below 100 mm. of mercury, (2) disorientation, (3) pulse rate persistently over 160 per minute, (4) respiratory rate persistently over 50 per minute, (5) temperature of 107° F. for a quarter of an hour, (6) restlessness and violence, (7) coma, (8) pallor superimposed on cyanosis, (9) intolerance on the part of the patient, the restlessness of an intolerant patient adding greatly to the risks inherent in the treatment, (10) persistent vomiting. Catarrhal infection and nasal obstruction should be regarded as contraindications to treatment. The patient should be examined preparatory to the hypertherm treatment so as to exclude those with cardiovascular, respiratory, renal or hepatic disease. The treatment should be carefully explained beforehand to prepare the patient for his physical and mental ordeal. Oxygen and carbon dioxide should be given for at least an hour after treatment or until color improves. Premedication with 6 Gm. of sulfathiazole does not increase the hazards of hypertherm treatment.

Industrial Health

Committee On Industrial Health — Frederick W. Slobe, Chm., 2024 South Western Ave., Chicago, Frank P Hammond, H. A. Vonachen, R. I. Barickman, C. O. Sappington, Milton H. Kronenberg.

ABSENTEE SICKNESS RATE SOARS TO REFLECT WARTIME CONDITIONS*

Absenteeism due to sickness among male industrial workers showed a substantial increase for the third quarter of 1944, shooting the total industrial sickness rate in this year up to 37 per cent above average for the period 1935-1944, according to statistics released by the Industrial Hygiene Division of the U. S. Public Health Service.

Nonrespiratory-nondigestive diseases rose 15 per cent above a like period in the previous year. Conditions contributing to this record included a 26 per cent increase in rheumatism, a 29 per cent increase in neurasthenia and other diseases of nervous or mental origin, and a 34 per cent increase in diseases of the genitourinary system.

The incidence of rheumatic diseases, diseases of the heart and arteries, nephritis, and nervous diseases has never been equalled or exceeded within the past decade. Nervous diseases showed the highest rate of increase, rising 76 per cent above the ten-year mean.

The rate of respiratory diseases, while slightly lower than in 1943, was 32 per cent above average for the decade. Digestive diseases also rose to a rate exceeding anything experienced with the ten-year period.

Employment conditions peculiar to wartime are held responsible. Categories of disease showing the highest increase involve mainly older workers. The hiring of workers long unemployed or retired is one factor held to contribute to the record sickness rate, as is the employment of youths and other inexperienced personnel, and the necessity for employing in industry men rejected by the armed services.

Wartime working and living conditions are thought to be reflected, since other factors held accountable include emotional strain and personal mental conflict, overcrowding in plants and war communities, fatigue due to the lengthened work week, and night work.

*"Industrial Hygiene News Letter," Vol. 5, January, 1945, No. 1

DERMATOPHYTOSIS INVESTIGATION*

Results of a study of dermatophytosis in industry, reported by the Dermatoses Section of the Industrial Hygiene Division, U. S. Public Health Service, show this type of fungous infection to be unimportant as a cause of lost time among industrial workers.

Object of the study was the gathering of data relative to (1) the incidence of dermatophytosis in industry, (2) possible spread of this infection in industrial shower and locker rooms, (3) the relationship of dermatophytosis and industrial dermatitis, and (4) the differential diagnoses between dermatophytide and industrial dermatitis of the hands.

Workers from various parts of the Nation were examined for fungous infections of the hands and feet. Of the total number, nearly 28 per cent were clinically positive, 33.3 per cent doubtful, and the remainder negative. Sex made no apparent difference, but season of the year was found to be an important factor in the incidence, with the highest number of infected individuals found during the summer months.

Shower room flooring was held to be a possible but not likely source of fungous infection of the feet. A type of copper-impregnated flooring

investigated was found to be of no value in preventing spread of the infection.

Allergic contact dermatitis was shown to bear no relationship to dermatophytosis. An allergy to this type of fungus or its products appeared to be unrelated to other dermatic conditions handicapping industrial workers, and to be of little importance as a factor in lost time.

LEAD POISONING IN ORCHARD WORKERS*

Employment and working conditions resulting from the war have increased the dangers of lead poisoning among orchard workers in north-central Washington, it is reported by Dr. Lloyd M. Farner, head of the Industrial and Adult Hygiene Section of the Division of Preventive Medical Services, Washington State Department of Health.

Among 19 cases of illness recently investigated by the Section, nine were found to be lead poisoning, resulting from the use of lead arsenate as an insecticide in codling moth control. Shortage of labor leading to continuous exposure of some workers for as long as 70 hours a week, and inadequate education of new workers in the hazards involved in their occupation, were held to be basic reason for the sharp increase last year in the incidence of lead poisoning.

EXPOSURE TO SOLUBLE BARIUM DUST AND FUMES†

The California Bureau of Industrial Hygiene has made a survey in a plant where an ore rich in barium sulfate is converted to barium oxide, barium peroxide and barium hydrate. During the various steps of the process, employees are exposed to dust or fumes of each of these soluble compounds. Measurements of concentration of dust and fume, both by particle count and weight, when correlated with subjective reaction of exposed persons, permitted the setting of tentative standards with respect to the irritative effect of the dust. The plant offers an excellent opportunity for the study of systemic effects of long time inhalation of soluble barium products. No study of this sort has yet been made by the Bureau.

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LOCAL EXHAUST VENTILATION IN METALIZING OPERATIONS†

An industrial plant in California has solved the problem of collecting dust and fumes from metalizing operations where these operations are performed on long parts, requiring the metalizing torch to travel several feet. A small hood was devised to surround that portion of the piece being metalized and adapted to travel along the lathe bed with the metalizing torch. Exhausting this hood was accomplished by connecting it to the blower by means of short lengths of ducts equipped with swivel elbows. The hood was designed with face velocity of 500 feet per minute and shaped to catch high velocity streams of particles rebounding from the sprayed surface.

SULFUR DIOXIDE IN DRIED FRUIT PROCESSING†

A study of the exposure of workers in a fruit packing plant to sulfur dioxide gas used in treating the fruits has led to the recommendation of a new method of applying the gas. The gas has been generated by burning solid sulfur in shallow trays on the floors of treatment rooms. Since there is continuous discharge throughout the burning period of a large quantity of highly contaminated air, which not only exposes the workers in the plant but creates a nuisance in the area outside, it was recommended that this method be replaced by the injection of sulfur dioxide gas from pressure cylinders directly into tightly sealed spaces, in accordance with usual fumigation practice.

CAMPAIGN TO REDUCE ACCIDENT AND HEALTH HAZARDS IN PLANING MILLS AND SMALL WOODEN CONTAINER INDUSTRIES*

A six month drive, beginning January 1, 1945, planned to reduce injuries and to eliminate health hazards in planing mills and small wooden container industries, has been initiated by the Department of Labor. A conference on this subject, called by the Division of Labor Standards, U. S. Department of Labor, on November 15, 1944, in Washington, was attended by national agencies concerned, the three trade

†"Industrial Hygiene News Letter", Vol. 4, December, 1944, No. 12

associations representing these industries and three labor unions involved.

The Bureau of Labor Statistics has reported an extremely high accident frequency and severity in these industries. A frequency rate of 44 has been reported for planing mills and 54 for the container industry. One out of every 200 employees in the planing mills has a serious injury every year. Absenteeism from sickness in this industry has also been serious.

The Division of Labor Standards will arrange for the calling of State meetings of all interested agencies to launch the drive in those States where there are sufficient industries to warrant such meetings. Industrial Hygiene Divisions will be asked to cooperate in making surveys of occupational health hazards in these industries. The present campaign is a confirmation of similar efforts in which Industrial Hygiene Divisions have cooperated.

SICK ABSENTEEISM AND MEDICAL CERTIFICATES FOR INDUSTRIAL WORKERS*

The present critical need of manpower for increased war production calls for more effort to be directed toward reduction of unnecessary absenteeism and labor turnover. Among the many factors bearing on this problem is the relation between private physicians and industrial physicians. A statement recently prepared on this subject by the Safety and Security Division, Office of the Chief of Ordnance, Army Service Forces, directed toward industrial physicians in Ordnance plants, has been called to our attention because of its applicability to all plant physicians and cooperating private physicians.

This statement says in part "To minimize absenteeism alleged to sickness and terminations attributed to ill health, the closest possible cooperation should be maintained between plant physicians and private physicians in nearby communities. Private physicians often have no accurate information concerning health hazards associated with their patient's jobs in Ordnance plants and the generally satisfactory medical and engineering measures taken for their control, and are often at a loss as to how to advise their patients regarding complaints related to work. Likewise, private physicians are not generally aware of the information concerning their patients, available from the plant physician in connection with past examinations, blood tests, x-ray findings, and other diagnostic aids."

The related problem of medical certification of illness has also been brought to our attention as a matter that should be considered by the State Industrial Hygiene Divisions. This subject was discussed in an editorial entitled, "Medical Certificates and War Production," published in the Journal of the American Medical Association, issue of November 11, 1944. The private physician's responsibility is presented in this editorial as follows: "The Government and its contracting agents customarily require medical certificates to cover an absenteeism alleged to illness or a labor termination attributed to reasons of health. The medical profession is then put under pressure by thoughtless persons who see little harm in collecting disability benefits or in obtaining better jobs on pretext of illness. They fail to see the cumulative results of hundreds of thousands of such acts on critical war production. Responsibility rests squarely on the physician to act as prosecutor, defense attorney and judge before issuing such a certificate. He fails himself, his profession and the war effort if certificates are issued without due cause."

Traditionally, the doctor has been called upon to champion and be an advocate of his patient. In the main, the patient has been the one who employed him and he has instinctively defended the patient against any or all groups having impersonal interests. The doctor is called upon to certify to this and to that. He must certify birth and death; the occurrence of contagious disease; the health of food handlers; and the freedom from disease of candidates for marriage. Health and accident policies depend to an appreciable extent on the knowledge and integrity of practicing physicians. Compensation statutes require medical judgements as bases to support legal judgments. One easily understands why the busy doctor labels all certification a "chore." It is true that to refuse to sign any statement his patient requests, the physician risks an irate individual, but one wonders what degree of confidence and respect the patient will have in his doctor if the latter, unwittingly or not, falls in

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with such a procedure to circumvent common honesty.

The tendency of some workers is to indict fumes, gases, dust, etc. for real or alleged ill health. Actually, few unskilled workers know what if any occupational hazards exist in their working environment. Such a worker, in the role of a patient, may influence the family doctor to a most astounding and untenable diagnosis. It seems opportune to urge that physicians protect themselves in this respect by using confirmatory sources of information.

State and local industrial hygiene divisions can give the private physician information on the specific environmental health conditions in a particular plant on request, when there is any question concerning the possibility of illness being incurred on the job.

They can also assist industries in developing a standard form of certificate for physicians to use in making reports and can bring this subject to the attention of medical societies as opportunity offers.

PROPOSED INDUSTRIAL HEALTH SERVICE ACT*

In response to several requests from State divisions of industrial hygiene for a statement of desirable provisions for State industrial hygiene laws, a "Proposed Industrial Health Service Act" has been prepared and sent to all the States. This proposed Act states the duties of a State agency in regard to the investigation of places of employment and the adoption of rules and regulations pertaining to the control of industrial health hazards. It specifies actions that should be considered violations, namely, denial of access of health department representatives to industry, and the use of harmful materials known to be dangerous to the health of the workers. Requirement of reporting of occupational diseases to the State division of industrial hygiene by physicians is also included in the proposed Act's provisions.

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COMPLICATIONS OF PNEUMONIA

With the advent of penicillin and other powerful antibacterial drugs and specific agents for the treatment of pneumonia, supportive treatment may be as important as the antibacterial, four Boston physicians point out in *The Journal of the American Medical Association* for February 10.

S. Howard Armstrong Jr., M.D.; Albert C. England Jr., M.D.; Cutting B. Favour, M.D., and I. Herbert Scheinberg, M.D., report 2 cases of severe and progressive anemia and hypoproteinemia which developed in patients with extensive and protracted bacterial pneumonia being treated with penicillin.

They say that although these complications hitherto have been rarely seen in pneumonia, they "may occur with increasing frequency as specific agents permit prolonged survival in the face of infections otherwise rapidly fatal."

In one of the cases, they explain, the anemia and hypoproteinemia of nutritional origin probably antedated the pneumonia because the patient, a man aged 85, had been on a deficient diet for several years. In the other case the anemia and hypoproteinemia developed after the onset of pneumonia.

"In these patients," the four physicians say, "enormous amounts of whole blood and plasma were required to counteract the progression of the anemia and hypoproteinemia. The fact that this therapy together with nearly all known measures for maintenance of optimum . . . in remaining functional lung tissue, appeared necessary to maintain life for some time after apparent bacteriologic arrest of the infection suggests that, in pneumonia of this severity, development of anemia and hypoproteinemia should be anticipated by early use of whole blood and plasma together with adequate protein dietary intake."

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

★ WAR SERVICE ACTIVITIES ★

BUREAU COUNTY

Ten of the thirty-two members of Bureau County Medical Society are in the armed forces serving in the European and Pacific theaters of war. At the November meeting of the Society a committee was appointed to draft a letter, copy of which was sent to each member in service. Included in the letter were holiday greetings from the members and a brief review of the activities of the Society during the past year.

COOK COUNTY

Capt. Claude W. Carr has been named medical officer for the 9th naval district at the Great Lakes Naval Training center, replacing Capt. C. B. Camerer.

Lt. Col. Leo Patrick Sweeney of Chicago, formerly connected with Loyola University School of Medicine, has been promoted to Colonel.

Caesar Sweitzer of Chicago has been promoted from Major to Lt. Col.

The following promotions from Major to Lt. Colonel have been announced: Everett Lee Strohl, Werner Felix Eisenstaedt, Elbert Kenneth Lewis, Vincent Albert Madda, all of Chicago and Louis Philip River of Oak Park.

Captain Charles Joseph Katz of Oak Park and Second Lieutenants Minnie L. Breese and Alice Josephine Hahn of Chicago of the Army Nurse Corps, have been rescued on Luzon where they have been held captive.

The University of Illinois Evacuation Hospital (the 27th) is now stationed with the Seventh Army in Germany. Moved from a camp in Kentucky to Africa, then to Italy, then southern France and on north, the unit moved up close behind the battle lines of the Seventh Army onto German soil. It has won three battle stars for service in three countries. The hospital is a 750 bed unit whose total personnel, including patients, ranges between 1,300 and 2,000. The hospital unit is staffed largely by faculty men and alumni of the university's colleges in Chicago.

Capt. Frank J. Lavieri, formerly of Chicago, was recently awarded the Bronze Star for meritorious achievement in action in Normandy with a paratroop unit, and the Presidential Unit Citation, awarded to all members of his paratroop group among the first to land in Normandy on D day. Dr. Lavieri graduated from the University of Illinois College of Medicine, Chicago, in 1930 and entered the service Oct. 31, 1942.

Lt. Col. Ralph H. Fouser, of Chicago, who recently completed almost a year and a half of Army surgery in the Solomon Islands, has been named the new commanding officer of the station hospital at Camp Ellis, Illinois, replacing Col. Herman A. Jacobson, also of Chicago, who leaves for overseas, Col. John S. Sullivan, camp commander, announced.

A reserve officer with World War I experience, Col. Fouser served as chief of the general surgical service of an evacuation hospital in the New Hebrides Islands.

A certified specialist by the American Board of Surgery, and Fellow of the American College of Surgeons, Col. Fouser was engaged in an extensive practice or general surgery in Chicago and suburban Oak Park before the present war. He was a member of the West Suburban hospital and other Chicago hospitals. Earlier he was a clinical associate in surgery at Rush Medical College in Chicago, and professor of anatomy at Loyola University.

A Bronze Star Medal has been awarded to Captain Garland N. Adamson, Medical Corps,

United States Army, formerly of Chicago, for "heroic achievement in connection with military operations against an armed enemy of theUnited States, at ....., France, on 11 November 1944. On 11 November 1944, the bivouac area of the ..... Tank Battalion, in the vicinity of ....., France, was subjected to heavy enemy artillery fire. During the shelling, one member of a tank crew was seriously wounded and could not be safely removed to the aid station. Captain Adamson, in total disregard for his own personal safety, and under the enemy's artillery fire, proceeded on foot from his aid station to the wounded man and gave emergency first aid, coolly and efficiently. His prompt, courageous action saved the man's life. His strong devotion to duty, his courage and solicitude for our wounded reflect the highest credit upon Captain Adamson and the armed forces of the United States."

One of the busiest Chicagoans on Iwo Island has been Lt. (jg) Marvin Dale Courtney formerly of 8103 Marquette Avenue, Chicago, who is directing care of the wounded. He expressed pleasure at the results gained by blood plasma in saving the wounded, but said shell shock and battle fatigue cases were on the increase because of the continued heavy explosions. Doctor Courtney was graduated from the University of Chicago Medical School in March, 1943 and entered the navy two months later. He interned at the Great Lakes Naval Training Station and was sent to Guam in August, 1944 with the 3rd marine division.

U. S. 297th General Hospital, England, Feb. 11.—This small corner of England, less than a square mile, is almost a bit of Chicago. The 297th General hospital is manned mostly by doctors, nurses, and enlisted men from Chicagoland.

The hospital, an affiliated unit of the Cook County hospital in Chicago, was established shortly after D-day. It has cleared 5,000 patients, of whom more than 2,500 required major operations. Its 1,500 patient capacity usually is filled.

In command is Col. Francis Pruitt, Shelbyville, Ind., with Lt. Col. Chester C. Guy, Chicago, as chief of the surgical service.

Among those in the surgical service are Maj. Peter Nelson, Fremont, Ill., chief of Urology; Major John J. Walsh, 2946 W. Monroe St., Chicago, chief of the eye, ear, nose, and throat section; Maj. Hampar Kelikian, Chicago, chief of orthopedics; Capt. Malcolm C. Todd, Lawrenceville, Ill., chief of general surgery; Capt. Edmond R. Donoghue, 7136 Oglesby Ave., Chicago, chief of the operating rooms; Capt. Francis Napolilli, 3526 Reta Avenue, Chicago, chief of plastic surgery; Capt. William H. Walters, 5935 Nina Ave., Chicago, surgeon; Capt. Carl K. Solander, 530 Arlington Pl., Chicago, orthopedic section; Capt. Joseph C. Schoolman, 7024 Paxton Ave., Chicago, eye, ear, nose, and throat section, and Capt. Nicholas J. Capos, 525 Arlington Pl., orthopedic section.

The head nurse in the operating rooms is Capt. Irene Magnin, who for six years was head nurse at Cook County hospital.

Captain Sidney Kahn, 1817 S. St. Louis Avenue, Chicago, who saw 29 months of action as a member of a portable surgical hospital unit is home on leave awaiting reassignment. He was an intern in the Illinois Masonic Hospital and the Cook County Hospital before he entered the army.

DU PAGE COUNTY

Word has been received from the Surgeon General's Office that Ernest Martin Nielsen of Elmhurst has been promoted from Lt. Colonel to Colonel.

MARION COUNTY

The Navy and Marine Corps Medal was recently awarded to Lieut. Comdr. Ernest N. Neber, formerly of Centralia, Ill. The citation read "for heroic conduct while serving as flight surgeon with a Marine fighter squadron on the occasion of an explosion at an advanced naval base in the Solomon Islands area on Sept. 4, 1943. When a large aerial bomb exploded and overturned a nearby truck, Lieutenant Commander (then Lieutenant) Neber unhesitatingly rushed to the aid of three men in the cab of the burning vehicle. Lifting him out of the compartment while ammunition from the gun pans of four blazing planes exploded around him, he carried an unconscious and badly burned victim to the safety of a revetment, where he skilfully administered emergency treatment. Seconds after he effected his daring and gallant rescue, a gasoline truck exploded and completely demolished the four planes and the overturned vehicle. Lieutenant Commander Neber's professional integrity and fearless devotion to duty, maintained at great personal risk, undoubtedly saved the life of a man who otherwise might have perished and were in keeping with the highest traditions of the United States Naval Service." Dr. Neber graduated from Hahnemann Medical College and Hospital of Philadelphia in 1936 and entered the service July 1, 1944.

MONTGOMERY COUNTY

Joseph Robert Rebillot of Litchfield has been promoted from Major to Lt. Colonel.

PEORIA COUNTY

Charles Digges Branch of Peoria, Major in the Medical corps has been promoted to Lt. Colonel.

GENERAL

BUREAU COUNTY

The following officers have been elected by the Bureau County Medical Society to serve for 1945: President, J. Harold Hopkins, Walnut; Vice-President, F. Emerson Inks, Princeton; Secretary-Treasurer, Gerald S. McShane, Spring Valley; Delegate, George E. Kirby, Spring Valley and Alternate Delegate, K. M. Nelson, Princeton.

The February 13th meeting of Bureau County Medical Society was held at Spring Valley. P. V. Hartman, Jr. of Granville discussed "Penicillin" and Gerald S. McShane, ,Medical Director of the Green River Ordnance Plant showed a training film on the application of "Plaster Casts" a recent issue by the United States Army. The March meeting will be a social gathering at the home of Doctor and Mrs. M. A. Nix, Princeton. It will be a joint meeting of the Society and the Women's Auxiliary.

Due to unpredictable weather conditions during the winter months, instead of having scientific programs presented by outside speakers, the programs have been given by members of the Bureau County Medical Society. On Dec. 12th, 1944 J. G. Powers of Spring Valley presented a paper on "Atypical Pneumonia" and at the January meeting M. C. Nix spoke on "Hydro-Nephrosis."

CARROLL COUNTY

Joseph B. Schreiter, Savanna, recently started his forty-fifth year as coroner of Carroll County. Doctor Schreiter, who graduated at Rush Medical College, Chicago, in 1896, was named coroner in 1900, serving in the position ever since with time off to go overseas in the first world war.

COOK COUNTY

Dr. Charles A. Siler, a practicing physician in Oak Park since 1929 and formerly a medical missionary in China, has been appointed health commissioner of Oak Park, effective February 15. He succeeds Dr. Gilbert P. Pond, who resigned to accept a commission in the U. S. Navy. Dr. Siler graduated at the University of Kansas School of Medicine, Lawrence-Kansas City, in 1910, receiving also a degree from Rush Medical College, Chicago, in 1922.

The state department of registration and education moved, January 31, to the second floor of the Burnham Building, 160 North La Salle Street. The department, whose telephone number is now Andover 4755, was formerly housed at 600 South Michigan Avenue.

The fourth Edwin R. Kretschmer Memorial Lecture will be delivered on April 27 at the Palmer House by Dr. William Bloom, professor of anatomy, University of Chicago School of Medicine, on "Experiments on Hematopoiesis." The lecture is a project of the Institute of Medicine of Chicago.

A professorship in pathology is one of four new professorships created at Northwestern University in honor of the late Mrs. Emma H. Morrison. Mrs. Morrison willed $1,750,000 to the university when she died four years ago to create the "Charles E. and Emma H. Morrison Memorial Fund" with the stipulation that the university use the bequest in the manner it deemed best. The other professorships include one each in zoology, English and marketing.

William D. Stroud, Associate in Medicine, Pennsylvania University and Professor of Cardiology, Graduate School of Pennsylvania University addressed the North Side Branch of the Chicago Medical Society at the Drake Hotel, March 1st. His subject was "Heart Disease."

Russell D. Herrold of Chicago has been elected Secretary-Treasurer of the North Central Section of the American Urological Association.

The Twenty-first Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine was presented by Arnold R. Rich, Professor of Pathology of The Johns Hopkins University School of Medicine, February 23rd. His subject was "The Role of Hypersensitivity in the Pathogenesis of Rheumatic Fever and Periarteritis Nodosa."

The Illinois Society for Mental Hygiene sponsored a 2-day Institute on "Readjusting With The Returning Servicemen" at the Knickerbocker Hotel, Chicago on March 8th and 9th.

The Institute of Medicine of Chicago and the Central Service for the Chronically Ill held a luncheon meeting at the Standard Club, Chicago on March 6th at which time Herman L. Kretschmer spoke on "The Problem of the Chronically Ill Patient."

LA SALLE COUNTY

John W. Howser addressed the LaSalle County Medical Society on March 8th, subject "Intestinal Obstruction." The April 12th meeting will be held at the Kaskaskia Hotel, LaSalle

with the Illinois Valley Manufacturers Association presenting the program.

MACOUPIN COUNTY

M. F. Engman, Jr. of St. Louis will give a talk on "Skin Diseases of School Children" at the March 20th meeting of Macoupin County Medical Society.

UNION COUNTY

Charles D. Nobles has been appointed managing officer of the Anna State Hospital, Anna.

VERMILION COUNTY

Everett P. Coleman of Canton, President of the Illinois State Medical Society was the guest speaker at a joint dinner of the members of the Woman's Auxiliary of the Vermilion County Medical Society and the American Association of University Women at Danville on February 6th. His address was broadcast over radio station WDAN and was centered on recent legislative trends in medicine.

WILL-GRUNDY COUNTY

The following programs have been arranged for the luncheon meetings of Will-Grundy County Medical Society at 12:30 o'clock, Louis Joliet Hotel, Joliet:

March 2—Charles Edwin Galloway — Obstetrics
March 9—S. J. Zakon — "Office Dermatology"
March 16—Hilger P. Jenkins — "Plastic and Reconstruction Work of Interest to the General Practitioner"
March 23—P. S. Pelouze — "Venereal Diseases"
March 30—W. E. Adams — "Chest Diseases"

STATE DEPARTMENT OF PUBLIC HEALTH

Effective with the issue of January 6, the former weekly and biweekly bulletins of the Illinois Department of Public Health are combined and issued as the Weekly Report of the Division of Communicable Diseases. Tables are now used to indicate the current week's provisional case reports of the more important communicable diseases, both in the state as a whole and in Chicago. The case reports for the same week of last year and the five year median, when this is of significance, are also shown for the purpose of comparison.

Kenneth M. Morse, engineer in the Division, has been appointed temporarily to take charge of the division of industrial hygiene in the Illinois Department of Public Health.

MARRIAGES

LEONARD V. GRATKINS to Miss Mabel Johnson, both of Chicago, November 16, 1944.

DEATHS

ALBERT S. ALBERT, West Frankfort; Reliance Medical College, Chicago, 1911. Had practiced medicine in West Frankfort for 25 years. Died of pneumonia following an operation, January 27th, at the age of 64.

JOHN LENNE ALESHIRE, Plainville; University Medical College of Kansas City, Mo., 1900. Died in January, aged 70.

HENRY R. BOETTCHER, Chicago; Hahnemann Medical College, 1890. Chief eye surgeon for the Wabash Railroad, a trustee of Englewood Hospital and a director of First National Bank of Englewood. Died February 5th, aged 78.

DANIEL W. BOWERS, Calhoun; Barnes Medical College, 1895. Practiced medicine fifty years in Richland County and Bonpas township. Died, aged 83, January 16th.

LEROY B. CHAPIN, retired, Canton; Northwestern University Medical School, 1897. Served as Fulton County physician for three years and also as a member of the staff of Graham Hospital; was coroner of Fulton County from 1924 to 1928. Died February 4th at the age of 81.

GEORGE H. COPIA, Chicago; Loyola University School of Medicine, 1918. Died recently, aged 50.

IRVING SAMUEL CUTTER, formerly dean of Northwestern University Medical School and recently health editor of the Chicago *Tribune*, died in the Passavant Memorial Hospital, February 2, aged 69, of carcinoma of the prostate and generalized carcinomatosis.

Dr. Cutter was born in Keene, N. H., Dec. 5, 1875. For a year in 1896 he was instructor in a high school in Humboldt, Neb., principal at the Beatrice High School from 1898 to 1900 and general agent at Ginn and Company from 1900 to 1906. He received the degree of bachelor of science at the University of Nebraska, graduating there in medicine in 1910 and subsequently serving as instructor of physiologic chemistry, professor of biochemistry and director of the laboratory and, for the period 1915 to 1925, as dean. In the latter year he joined the Northwestern faculty as associate professor of medicine and dean, serving in the dual capacity until 1941, when he retired to become emeritus professor of medicine and dean. He had been medical superintendent of Passavant Hospital since 1928, serving also as trustee of Northwestern University and Wesley Memorial Hospital.

Dr. Cutter held the rank of captain in the medical corps of the U. S. Army, 1918-1919, serving in charge of medical service at Camp Gordon, Georgia, and

lieutenant colonel in the medical section of the Officers Reserve Corps from 1920 to 1929. He held membership in numerous societies and fraternities, including the American Chemical Society, Sons of the American Revolution, Alpha Omega Alpha, Chi Phi, Sigma Xi and Phi Rho Sigma, of which he had been president from 1927 to 1934. He held fellowship in the American Association for the Advancement of Science and served as chairman, member of the executive council and president in 1923 of the Association of American Medical Colleges. He was president of the Society of Medical History of Chicago in 1934 and at one time was vice president of the Illinois Social Hygiene League. Honorary degrees which he had received included the doctor of science from the University of Nebraska in 1925 and Northwestern University in 1941, and doctor of laws from Jefferson Medical College, Philadelphia, in 1931.

Dr. Cutter was a prolific writer for many years, and served also as first editor of the *Nebraska State Medical Journal* from 1916 to 1918 and member of the editorial board of the *Annals of Medical History*. Since 1934 he had been health editor of the Chicago *Tribune* and author of the daily column "How to Keep Well." In recognition of his services, Col. Robert R. McCormick, editor and publisher of the Chicago *Tribune*, gave property to Northwestern University for the establishment of a fund known as the Irving S. Cutter Fund for Medical Research. Included among his contributions to the literature are School of Medicine, History of Physical Therapy, History of Obstetrics and Gynecology and Laboratory Manual of High School Botany, of which he was a co-author.

JAMES FRANKLIN DIXON, Mount Erie; St. Louis College of Physicians and Surgeons, 1905. Passed away at the Olney Sanitarium after a long illness, in January, at the age of 70.

JAMES K. EGBERT, Elgin; Rush Medical College, 1886. Had practiced medicine in Sycamore and Chicago before coming to Elgin to live. Was blind the last two years of his life. Died February 5, at the age of 85.

PETER HAGEDORN, retired, Chicago; Hahnemann Medical College and Hospital, 1891. Had practiced medicine on Chicago's south side for fifty years. Died February 15th, aged 85.

WALTER H. O. HOFFMANN, Chicago; University of Jena, Germany, 1897, and Rush Medical College, 1915. Member of the staffs of the Presbyterian and Children's Memorial Hospitals, and pediatrician at Chicago Memorial Hospital. Died February 11th, at the age of 72.

CHARLES R. HUGGINS, retired, Belleville; Marion-Sims College of Medicine, St. Louis, 1892. Had practiced medicine in Belleville for fifty years. Died in St. Elizabeth's Hospital January 26th, aged 82 years.

THOMAS FRANKLIN JAMES, Chicago; Chicago College of Medicine and Surgery, 1916; died in the Mother Cabrini Hospital November 21st, 1944, aged 67, of cardiac dilatation and lobar pneumonia.

ELMER L. KENYON, Chicago; Rush Medical College, 1896. Since 1903, he specialized in otolaryngology. In 1910 he established the second clinic for disorders of the voice and speech in the United States at Rush Medical College; since 1912 he taught disorders of speech at Rush, retiring in 1937 with the rank of Emeritus Associate Professor. Served as president of the Chicago Laryngological and Otological Society in 1919, of the Jackson Park Branch of the Chicago Medical Society in 1917-1918, and of the alumni Association of Rush Medical College in 1922. Died of a cerebral hemorrhage February 2nd, at the age of 84.

JOHN E. LEE, Venice; Keokuk Medical College, 1892. For many years, mayor of Venice; president of the First National Bank of Madison; Died December 8, 1944, aged 69, of cerebral hemorrhage.

LEWIS E. MARTIN, retired, Newton; Eclectic Medical College, Cincinnati, 1894. Had been in poor health for a couple of years. Died February 12th, aged 85.

JOHN A. NEIL, Chicago; Chicago College of Medicine and Surgery, 1910. Had practiced medicine in Chicago 30 years until he retired and moved to Florida last fall. Died in Tampa, Florida, January 26th, at the age of 64.

WALTER ROWLEY PADDOCK, Lockport; Loyola University School of Medicine, 1896. Had practiced medicine almost half a century. Died January 27th, aged 71.

ROY B. ROBERTS, Brimfield; Ensworth Medical College, St. Joseph, Mo., 1897. Had practiced medicine in Brimfield for many years and was formerly mayor. Died in St. Francis Hospital, Peoria, following an operation, January 28th, at the age of 69.

HARLAN D. SHELDON, Chicago; Bennett Medical College, 1910. Had practiced medicine in Chicago for 35 years. Died of a heart attack in his home February 4th.

HAROLD L. SIPPY, Chicago; Northwestern University Medical School, 1928. Was instructor at Northwestern University Medical School and a member of the staff of St. Luke's Hospital. Was found dead in his automobile, February 15th the victim of carbon monoxide gas poisoning. He was 43 years of age.

P. R. N.

The Jocular Jingles of C. G. F.

by

Charles G. Farnum M. D.
Peoria, Ill.

FLORIDA

For all too long the bite and sting of winter has harassed us. The constant cold has chilled our spirit, the battle with ice and snow has exhausted our energy, the shortened days and lengthened nights have smothered our ambition and the monotony of a somber winter has sapped our morale.

For all too long the birds have been gone, the flowers have been dead, and the trees have stood stark and bare against bleak, relentless skies.

In vain we try to focus attention upon our routine tasks, to stifle an atavistic migratory instinct to escape and to erase from our minds diverting thoughts of golden sunshine, azure skies, gay flowers, tawny beaches and the warmth of blue-green waters.

We crave environmental change. We crave something in contrast to the enervating and demoralizing climatic bitterness we have endured.

And when we contemplate contrasts we think of Florida for Florida is a land of contrasts:

Primitive life in the hinterland and the tinseled complexities of life in the cities.

Poverty that is indescribable and wealth beyond imagination.

Travel by mule at three miles an hour and by aeroplane at 300.

Waste land that costs fifteen cents an acre in the original purchase and man made land the price of which would stagger a Croesus.

Diseased bodies from hook-worm, malaria and rickets and the bronzed physical perfection of healthy humans who parade the beaches.

Inaccessible swamp land jungles and gorgeous cultivated groves and gardens.

The humble attitude of the horde that serves and the arrogance of the few who dictate.

Verily Florida is a land of contrasts!

But the contrast that to some of us is the most unforgettable and fixes itself most indelibly in our memory is the contrast found in the names of its cities, towns and rivers.

Jacksonville, Gainesville, Blountstown, Fort Walton, Port St. Joe, Perry, Millsville, Leesburg, Bartow, Miami (if you know the origin of the name), Bradenton, Dade City, Fort Meyers, O'Brien, Newberry, Ormond, St. Petersburg, etc. etc. ad nauseam.

Could any group of names be more unattractive, more commonplace, more tiring and, in some instances, more ugly?

And then in charming contrast in these there abound countless beautiful, melodious, inspiring old Indian names that kindle one's curiosity and imagination and give zest and lure to one's travels:

Istokpoga, Hatchenehaw, Alachua,
Myakka, Okeechobee, Chattachoochee,
Nuona, Miccosukee, Wakulla, Chocta,
Oklawaha, Panasoffkee, Withlacoochee.

Seminole, Skawano, Yulee, Tallahassee,
Kissimmee, Suwannee, Apalachicola,
Pakokee, Caloosahatchee, Wewahitchka,
Ankona, Lacoochee, Holopaw, Chipola.

Wetappo, Loxahatchee, Okelanta,
Welaka, Okefenokee, Immokalee,
Palataka, Sopchoppy, Thonotosassa,
Hicpochee, Wacahoota, Ochlockonee.

Ortona, Muskogee, Tohopekaligo,
Narcoossee, Wimauma, Ocala, Apopka,
Wauchulo, Waukeenah, Olustee, Wabasso,
Ochopee, Dahoma, Wechyekapka.

Picolata, Okahumpka, Cassadaga,
Istachatta, Chuluota, Manatee,
Astatula, Nokomis, Lokosee, Osceola,
Minneola, Choctawhatches, Nocatee.

Verily Florida is a land of contrasts!

TOUPEES

It would seem to be ruled
That a man shall be fooled
As to ages of women these days,
For the daughter and mother
Are exactly each other
Both in garb and in frivilous ways.

And a man may be old
But his years are not told,
For he dresses the part of a youth;
It is often a bother
To tell offspring from father
In our efforts to get at the truth.

But the effort that fails,
Though it often prevails,
In attempts made to push back the years,
Is when bald headed men,
As they do now and then,
Wear toupees for our mirth and our jeers.